Guidelines for Landscape and Visual Impact Assessment

Third edition

Landscape Institute and Institute of Environmental Management & Assessment

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Foreword

I am delighted that the third edition of GLVIA has now been published, as this updated guidance has been long awaited by those working in the field of LVIA. The new edition is comprehensive and clear, covering the many developments that have taken place in the scope and nature of impact assessment since publication of the second edition. There bave been significant changes to the environmental framework within which LVIA is now undertaken, particularly with the UK Government's ratification of the European Landscape Convention, confirming the importance and role of the landscape as used and enjoyed by us all. At the same time, the demands that are put on our landscape to accommodate new development, and to adapt to the changing wotld environment confirm the need for a strong framework within which the effect of change can be assessed and understood.

The straightforward approach taken in this revised edition emphasises clarity and simplicity in approach, and the importance of sound professional judgement. It also usefully identifies aspects of assessment that are commonly misunderstood or misinterpreted, and advises on approaches to best practice without being prescriptive.

My particular thanks must go to Carys Swanwick, who wrote this edition, to Jeff Stevenson CMLI, Chair of the GLVIA Advisory Panel, and to all involved in producing these guidelines. The guidelines remain the benchmark for landscape and visual assessment.

Sue Illman PLI
President of the Landscape Institute

Preface to the third edition

The third edition of the *Guidelines for Landscape and Visual Impact Assessment* has been produced under the joint auspices of the Landscape Institute and the Institute of Environmental Management & Assessment (IEMA), as co-authors of the guidance. The third edition supersedes earlier editions, and while aimed primarily at landscape professionals is written in such a way as to provide a flavour for those who are simply interested in the subject, as well as more detailed (but less prescriptive) guidance for the professional engaged in Landscape and Visual Impact Assessments.

The third edition clearly recognises that many different pressures have changed and will continue to change landscapes that are familiar to many, whether at national or local community level, and the landscape professional will be of particular importance in bringing forward measured and responsible assessments to assist decision making.

This new edition takes into account recognition of the European Landscape Convention by the United Kingdom government, and subsequently by the devolved administrations, which raises the profile of this important subject and emphasises the role that landscape can play in our day-to-day lives.

It has been produced to reflect the expanded range of good practice that now exists, and to address some of the questions and uncertainties that have arisen from the second edition. It also gives greater recognition to sustainable development as a concept – something that has come further to the fore through government policy and guidance across the UK. However, while mentioning government policy and guidance (whether at the UK level or through the devolved administrations) the third edition seeks to avoid reflecting a specific point in time, recognising that legislative, statutory and policy contexts change so that guidance that is tied to contexts will quickly become dated and potentially out of step.

A clear objective has been to continue to encourage higher standards in the conduct of Landscape and Visual Impact Assessments – something which the two previous editions of the guidelines, published in 1995 and 2002, have already helped to achieve.

The third edition attempts to be clearer on the use of terminology. The emphasis should be on the identification of likely significant environmental effects, including those that are positive and negative, direct and indirect, long, medium and short term, and reversible and irreversible, as well as cumulative effects. This edition encourages professionals to recognise this and assess accordingly.

The Landscape Institute is the recognised expert and professional body for landscape matters and this edition again acknowledges the holistic perspective that landscape

professionals take and the particularly valuable contribution they can make to Environmental Impact Assessment in general and Landscape and Visual Impact Assessment in particular. As such the third edition stresses that it is important that landscape professionals are able to demonstrate high professional standards and that their work should offer exemplars of good practice. It is to be hoped that this edition will further reinforce the professional's skills base by providing sound, reliable and widely accepted advice, aimed at helping professionals to achieve quality and consistency in their approach to Landscape and Visual Impact Assessment.

This edition concentrates on principles and process. It does not provide a detailed or formulaic 'recipe' that can be followed in every situation – it remains the responsibility of the professional to ensure that the approach and methodology adopted are appropriate to the task in hand. The aim has been to make the advice specific enough to meet the needs of UK practitioners but also to avoid too much detail about specific legislation which will make it of less value elsewhere.

Two areas where there has been considerable discussion and where we feel that we are moving forward are in exploring and providing better advice concerning assessing significance of effect, and in identifying and assessing cumulative effects. In both cases, debate will continue as these subjects evolve.

It is especially important (a) to note the need for proportionality, (b) to focus on likely significant adverse or positive effects, (c) to focus on what is likely to be important to the competent authority's decision and (d) to emphasise the importance of the scoping process in helping to achieve all of these.

As Chair of the GLVIA Advisory Panel which oversaw the production of this edition, I offer the most heartfelt thanks to Professor Carys Swanwick of the University of Sheffield, commissioned as the writer of the text, to Lesley Malone, Head of Knowledge Services at the Landscape Institute who co-ordinated the project, and to Josh Fothergill of IEMA. Carys is to be ptaised and very warmly congratulated, given the complexity of the task of balancing the sometimes competing needs and wishes of members, practices, government agencies and interested others, along with the views and input of the Advisory Panel. Producing this new edition has been challenging for all concerned but ultimately highly rewarding.

Government agencies have an important role throughout the LVIA process, particularly at the initial scoping stage and also in reviewing the final assessment. This guidance has been prepared following feedback from English Heritage, Natural Resources Wales (formerly the Countryside Council for Wales), Scottish Natural Heritage (Dualchas Nàdair na h-Alba), Natural England and the Environment Agency.

Thanks are also due to all those who, whether as individuals or as representatives of organisations or agencies, have contributed, with sometimes widely varying opinions and suggestions, to the evolution of the third edition. This edition could not and therefore will not satisfy every interest and opinion, but the Advisory Panel considers that it moves the subject forward considerably from the second edition. Doubtless debate will continue and new questions and issues will arise as this edition is applied and tested in practice but, after all, that is how progress in a subject is made.

The Landscape Institute and IEMA consider it essential to remember that the third edition is a 'step along the way'. Landscape and Visual Impact Assessment, along with Environmental Impact Assessment more genetally, evolves and will continue so to do with the role of the professional making professional judgements at the heart of the process.

Jeff Stevenson CMLI
Chait, GLVIA Advisory Panel

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The third edition of the *Guidelines for Landscape and Visual Impact Assessment* was prepared by Professor Carys Swanwick guided by the GLVIA Advisory Panel:

- Jeff Stevenson CMLI (Chair)
- Julian Francis CMLI
- Mary O'Connor CMLI
- Mark Turnbull FLI
- Marc van Grieken CMLI

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ENGLISH HERITAGE

Cyfoeth Naturiol Cymru
Natural Resources Wales

Scottish Natural Heritage
Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdar air fad airson Alba air fad

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Part 1

Introduction, scope and context

Chapter 1

Introduction

Chapter overview

- About this guidance
- When is LVIA carried out?
- Impacts, effects and significance
- Who is this guidance for?
- Organisation and structure of the guidance

About this guidance

1.1 Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity. The Landscape Institute and the Institute of Environmental Management & Assessment (and its predecessor the Institute of Environmental Assessment) have worked together since 1995 to publish guidance on LVIA. Two previous editions of these guidelines, published in 1995 and 2002, have been important in encouraging higher standards in the conduct of LVIA projects.

'Development' is used throughout this book to mean any proposal that results in a change to the landscape and/or visual environment.

1.2 This is the third edition of the guidance and replaces the earlier editions. The new version takes account of changes that have taken place since 2002, in particular:

- changes in the context in which LVIA rakes place, including in rhe legal and regulatory regimes and in associated areas of practice;
- the much greater range of experience of applying LVIA and testing it tbrough Public Inquiries and related legal processes, which has revealed the need for some issues to be clarified and for the guidance to be revised to take account of changing circumstances.

When is LVIA carried out?

1.3 LVIA may be carried out either formally, as part of an Environmental Impact Assessment (EIA), or informally, as a contribution to the 'appraisal' of development proposals and planning applications. Both are important and the broad principles and the core of the approach is similar in each case.

LVIA as part of EIA

1.4 LVIA applies to all projects that could require a formal EIA but also includes projects that may be assessed informally. EIA has been formally required in the UK, for certain types of project and/or in certain circumstances, since 1985. It applies not only to projects that require planning permission but also to those subject to other consent procedures like use of agricultural land for intensive agricultural purposes, irrigation and land drainage requirements or reclamation of land from the sea. The various European Union Directives underpinning this requirement have now been consolidated in Directive 2011/92/EU *The assessment of the effects of certain public and private projects on the environment.* The objective of rhe Directive is to ensure that Member States

> adopt all measures necessary to ensure that, before consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects.
>
> (European Commission, 2011)

The Directive and the Regulations that implement it in different countries of the UK specify the types of project and the circumstances in which EIA may be required. In summary, EIA is a way of ensuring that significant environmental effects are taken into account in decision making.

1.5 Devolution in the United Kingdom has meant growing emphasis on the individuality of approaches in devolved administrations and their related organisations. The framework within which EIA is carried out therefore consists of:

- the European Union Directive;
- UK Country Regulations which interpret and implement the Directive individually for England, Northern Ireland, Scotland and Wales;
- guidance documents produced by government departments to assist in implementation, including planning policy guidance and other forms of more specific EIA guidance, including guidance on specific types of change or development;
- specialised guidance produced by government agencies, or professional bodies (such as the Landscape Institute and IEMA), dealing with specific aspects of implemenration.

This means, depending on project location, that the landscape professional must be aware of the relevant devolved government/administration's requirements with respect to EIA so far as it is pertinent to Landscape and Visual Impact Assessment.

1.6 The EU Directive covering EIA and related matters applies equally to all countries of the UK but is implemented through country Regulations that may be different in each and may also change periodically as they are updated. Each country also has a number of specific Regularions that cover a range of named activities, some of them outside the planning system. Such specific Regulations cover (among other things) electricity supply, transport, fish farming, energy production and transmission, gas and petroleum extraction, water abstraction, forestry, land drainage, agricultural improvements on uncultivated land or semi-natural areas and restructuring of rural land holdings.

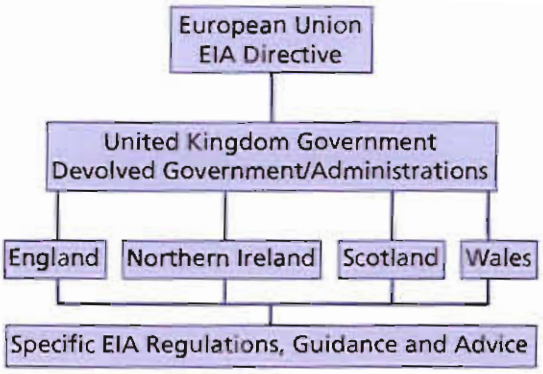


Figure 1.1 The EIA hierarchy

1.7 Planning policy guidance also differs across the four countries, as does the specialised guidance that has been issued by government departments and their agencies. The variety of specialist guidance from agencies and others also changes from time to time. Scottish Natural Heritage has been particularly active in producing advice and guidance both on EIA in general and on issues relating to the effects of wind farms in particular.

1.8 EIA procedures require a wide range of environmental topics to be investigated. The European Union Directive, the Regulations that apply in the UK and the guidance documents that support them all list these, albeit with slight variations in the wording. The topics can be summarised as:

- human beings, population;
- flora and fauna;
- soil, water, air, climate;
- landscape;
- cultural heritage (including architectural and archaeological heritage);
- material assets.

1.9 As well as specifically identifying landscape as a topic to be considered, the Directive and the Regulations also make clear the need to deal with the interrelationship between topics. This raises the issue of how landscape interrelates with matters such as, for example, population, flora and fauna, and cultural heritage. Consequently in the context of EIA, LVIA deals with both effects on the landscape itself and effects on the visual amenity of people, as well as with possible interrelationships of these with other related topics.

1.10 This guidance intentionally does not set out to identify or summarise the complex regulatory framework of legislation, Regulations and policy for EIA in general or for more specific aspects of it. To do so would immediately date it as the regulatory framework changes. The websites of relevant government departments and agencies provide the starting point for finding up-to-date information and will usually contain links to other relevant material. Anyone who may be involved in carrying out an LVIA as part of an EIA must ensure that they are fully familiar with the current legislation, Regulations and guidance documents that may be relevant to the specific project or location they are dealing with.

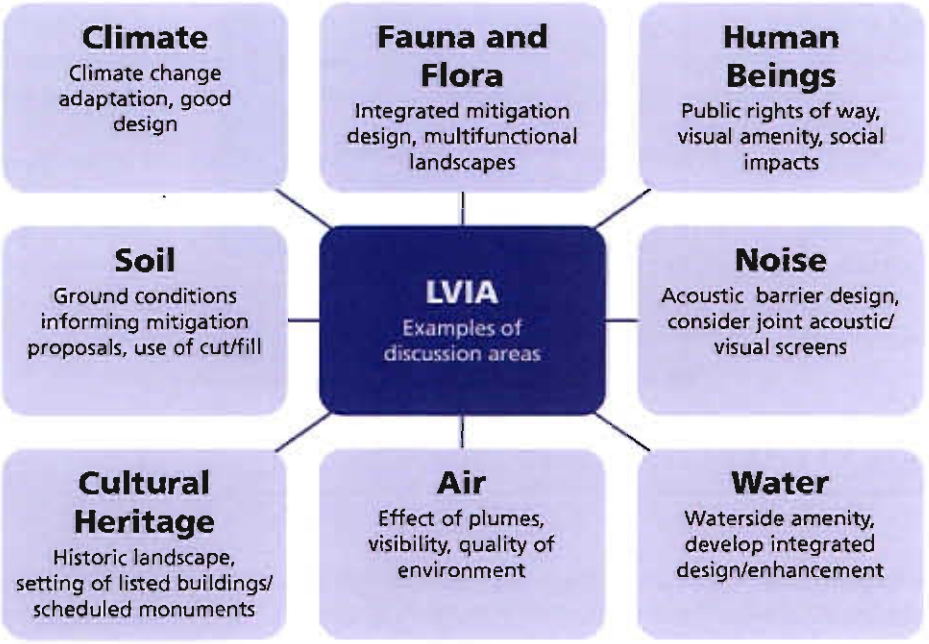


Figure 1.2 Examples of LVIA's relationship with other topics

LVIA in the 'appraisal' of development proposals

1.11 The principles and processes of LVIA can also be used to assist in the 'appraisal' of forms of land use change or development that fall outside the requirements of the EIA Directive and Regulations. Applying such an approach in these circumstances can be useful in helping to develop the design of different forms of development or other projects that may bring about change in the landscape and in visual amenity. Reference is sometimes made to the 'appraisal' of landscape and visual effects when such work is carried out outside the requirements of the EIA Directive and Regulations, and Local Planning Authorities may ask for such 'appraisals' where planning applications raise concerns about effects on the landscape and/or visual amenity. While much of this guidance is concerned with formal requirements for EIA and with the role LVIA plays in that process, the methods described will also be useful in such situations.

LVIA in Strategic Environmental Assessment

1.12 It has been widely recognised that project-level EIA alone cannot lead to comprehensive environmental protection or sustainable development. The European Strategic Environmental Assessment (SEA) Directive 2001/42/EC *The assessment of the effects of certain plans and programmes on the environment* (European Commission, 2001) is intended to address this and ensure that environmental consequences are addressed at strategic as well as project levels. It applies to certain plans and programmes that are developed by the public sector and by private companies that undertake functions of a public nature under the control or direction of government. This Directive is again transposed into UK law by a series of country-specific Government Regulations.

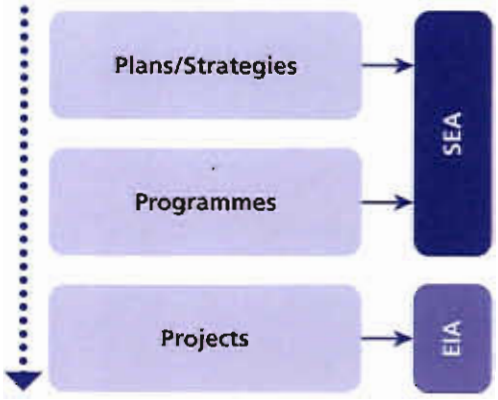


Figure 1.3 Relationship between SEA and EIA

1.13 Government and UK country agency guidance on implementing the SEA Directive and Regulations includes a similar list of environmental topics to the EIA Directive and Regulations, and so includes landscape. The principles of LVIA set out in this guidance are therefore equally applicable to SEA. There is a degree of overlap between the two processes and landscape and visual amenity issues may arise in both. However, as there is no clearly specified project to be assessed in SEA, the approach is more strategic and generic. The SEA process allows the cumulative effects of potential developments to be taken into account at an early stage of planning and alternative strategic approaches to be considered before decisions are taken, all in a way which is transparent. In England there are close relationships between SEA and sustainability appraisals of development plans, which have been carried out in various forms since the 1990s and have become an integral part of spatial planning, covering plans at all levels from national to local. There is a degree of overlap between the two processes and landscape and visual amenity issues may arise in both.

1.14 The approach is generally to judge how far the plan, programme or strategy performs against criteria relating to matters such as:

- conservation and enhancement of landscape character and scenic value;
- protection and enhancement of the landscape everywhere and particularly in designated areas;
- protection and enhancement of diversity and local distinctiveness;
- improvement of the quantity and quality of publicly accessible open space;
- restoration of landscapes degraded as a consequence of past industrial activity.

Impacts, effects and significance

1.15 Terminology can be complex and potentially confusing in this area, particularly in the use of the words 'impact' and 'effect' in LVIA within EIA and SEA. The process is generally known as impact assessment but the European Union Directive refers to assessment of the effects, which are changes arising from the development that is being

assessed. This guidance generally distinguishes between the 'impact', defined as the action being taken, and the 'effect', defined as the change resulting from that action, and recommends that the terms should be used consistently in this way. The document itself does use both, using 'impact' where this is the term in common usage.

1.16 Other guidance and advice has recognised that practitioners may use the terms 'impact' and 'effect' interchangeably while still adhering to the Directive and Regulations.[1] This may also be true of the wider public who become involved in EIA. This guidance urges consistent use of the terms 'impact' and 'effect' in the ways that they are defined above but recognises that there may be circumstances where this is not appropriate, for example where other practitioners involved in an EIA are adopting a different convention. In this case the following principles should apply:

- The terms should be clearly defined at the outset.
- They should be used consistently with the same meaning throughout the assessment.
- 'Impact' should not be used to mean a combination of several effects.

1.17 The Directive is clear that the emphasis is on the identification of likely significant environmental effects. This should embrace all types of effect and includes, for example, those that are positive/beneficial and negative/adverse, direct and indirect, and long and short term, as well as cumulative effects. Identifying significant effects stresses the need for an approach that is in proportion to the scale of the project that is being assessed and the nature of its likely effects. Judgement needs to be exercised at all stages in terms of the scale of investigation that is appropriate and proportional. This does not mean that effects should be ignored or their importance minimised but that the assessment should be tailored to the particular circumstances in each case. This applies to 'appraisals' of landscape and visual impacts outside the formal requirements of EIA as well as those that are part of a formal assessment.

Who is this guidance for?

1.18 The holistic perspective that landscape professionals take, coupled with the broad scope of their interests as embodied in the Landscape Institute's Royal Charter (Landscape Institute, 2008b) means that they make a particularly valuable contribution to EIA in general and to LVIA in particular, often playing leading or key roles in the multidisciplinary teams who carry out EIAs. It is important that they are able to demonstrate the highest professional standards and that their work should offer exemplars of good practice. While there has been continuous improvement in the standard and content of Environmental Statements – which are the documents resulting from the process of EIA – as experience has grown, there is still a clear need for sound, reliable and widely accepted advice on good practice for all aspects of EIA. Good practice in LVIA is key to this and also applies as much to 'appraisals' carried out informally as to contributions to the 'appraisal' of development proposals and planning applications.

1.19 As with the previous editions, this guidance is therefore aimed primarily at practitioners and is designed to help achieve quality and consistency of approach, to raise standards in this important area of professional work and so to ensure that change in the landscape is considered in an effective way that helps to achieve sustainable development

objectives. The intention is to encourage good practice and achieve greater consistency in the use of terminology and in overall approach.

1.20 The guidance concentrates on principles while also seeking to steer specific approaches where there is a general consensus on methods and techniques. It is not intended to be prescriptive, in that it does not provide a detailed 'recipe' that can be followed in every situation. It is always the primary responsibility of any landscape professional carrying out an assessment to ensure that the approach and methodology adopted are appropriate to the particular circumstances.

1.21 Although aimed mainly at those carrying out LVIAs, the guidance should also be of value to others who have an interest in understanding more about the importance of landscape and visual amenity issues, about the role of LVIA and about the way that it is carried out. They may include:

- developers, members of professional development project teams and other organisations who own or manage land and may be involved in projects that have the potential to change the landscape and visual amenity;
- other professionals involved in assessing the consequences of change for other aspects of the environment;
- planners and others within local government and the government agencies who may be the recipients of reports on the consequences of change and development and be required to review them;
- politicians, amenity societies and the general public who may be involved in decisions abour proposals for change and development;
- those providing education and training in LVIA as one of a range of tools and techniques contributing to landscape planning and design;
- students and others wishing to learn about the process of LVIA.

1.22 While written primarily in the context of the UK, it is recognised that previous editions of the guidance have also been used in other parts of the world. The aim has been to make the advice specific enough to meet the needs of UK practitioners while at the same time avoiding too much detail about particular legislation which will make it of less value elsewhere.

1.23 If this guidance is used beyond the UK, it will be important to remember that concepts and definitions vary and approaches must be tailored to local circumstances and legislation. There is a focus on the overall approach and methods rather than the specifics of their application in particular places or to particular types of development. More specific guidance may exist for certain types of development, such as roads for example, in which case account will need to be taken of both the general and the specific guidance.

Organisation and structure of the guidance

1.24 Given the different needs of the professional and the wider audiences the guidance is organised in two parts, as follows:

Part 1: Introduction, scope and context is aimed mainly at a wider audience with a more general interest in the topic, although it also contains material of relevance to practitioners. It provides an introduction to LVIA, in the context of some of the changes that have taken place since 2002. It sets the scene but is not concerned with the practicalities of actually carrying out LVIA.

Chapter 1: Introduction – this chapter – gives a brief introduction to LVIA and its relationship with EIA and SEA, introducing some key terms and describing the audience at which the guidance is aimed.
Chapter 2: Definitions, scope and context describes the introduction of the European Landscape Convention, and definitions of landscape, seascape and townscape. It discusses the role of LVIA in dealing with landscape change in the context of sustainable development, the role of professional judgement and the relationship of LVIA to the design process.

Part 2: Principles, processes and presentation is the core of the practical guidance. It sets out fundamental principles and provides guidance on methods, procedures and technical issues.

Chapter 3: Principles and overview of processes outlines the process of LVIA and places it in the context of wider EIA processes. It provides a framework for the later chapters on assessing landscape effects and visual effects by setting out the general approach to the core steps of describing the baseline, identifying the effects and assessing their significance.
Chapter 4: The proposed development, design and mitigation describes what those involved in carrying out LVIA need to know about the development or change that is proposed and discusses the detail of approaches to mitigation, which may become part of the scheme proposals through the iterative design process.
Chapter 5: Assessment of landscape effects describes how the general approach and processes apply when assessing landscape effects.
Chapter 6: Assessment of visual effects describes how the general approach and processes apply when assessing visual effects.
Chapter 7: Assessing cumulative landscape and visual effects describes ways of approaching the issue of cumulative landscape and visual effects.
Chapter 8: Presenting information on landscape and visual effects summarises approaches to presenting material about LVIA whether as a chapter in an Environmental Statement or as a standalone document.

Summary advice on good practice

- LVIA may be carried out either formally, as part of an Environmental Impact Assessment (EIA) or a Strategic Environmental Assessment (SEA), or informally as a contribution to the 'appraisal' of development proposals and planning applications. Both are important and the broad principles and the core of the approach are similar in each case.
- Anyone involved in carrying out an LVIA, whether as part of an EIA or not, must ensure that they are fully familiar with the current legislation, Regulations and guidance documents that may be relevant to the specific case they are dealing with.
- This guidance recognises a clear distinction between the **impact**, as the action being taken, and the **effect**, being the result of that action, and recommends that the terms should be used consistently in this way. 'Impact' should not be used to mean a combination of several effects.
- The emphasis on **likely significant** effects stresses the need for an approach that is proportional to the scale of the project that is being assessed and the nature of its likely effects. This applies to 'appraisals' of landscape and visual impacts outside the formal requirements of EIA as well as those that are part of a formal assessment.

Chapter 2

Definitions, scope and context

Chapter overview

- What does landscape mean?
- The importance of landscape
- Landscape change and sustainable development
- The role of LVIA
- Professional judgement in LVIA

What does landscape mean?

2.1 The UK has signed and ratified the European Landscape Convention (ELC) since 2002, when the last edition of this guidance was published. The recognition that government has thus given to landscape matters raises the profile of this important area and emphasises the role that landscape can play as an integrating framework for many areas of policy. The ELC is designed to achieve improved approaches to the planning, management and protection of landscapes throughout Europe and to put people at the heart of this process.

2.2 The ELC adopts a definition of landscape that is now being widely used in many different situations and is adopted in this guidance: 'Landscape is an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' (Council of Europe, 2000). This definition reflects the thinking that emerged in the UK in the late 1980s and early 1990s and was summarised in the 2002 guidance on Landscape Character Assessment. The inclusive nature of landscape was captured there in a paragraph stating that:

> Landscape is about the relationship between people and place. It provides the setting for our day-to-day lives. The term does not mean just special or designated landscapes and it does not only apply to the countryside. Landscape can mean a small patch of urban wasteland as much as a mountain range, and an urban park as much as an expanse of lowland plain. It results from the way that different components of our environment – both natural (the influences of geology, soils, climate, flora and fauna) and cultural (the historical and current impact of land use, settlement, enclosure and other human interventions) – interact together and are perceived by us. People's perceptions turn land into the concept of landscape.
>
> (Swanwick and Land Use Consultants, 2002: 2)

2.3 This guidance embraces this broad interpretation of what landscape means and uses it throughout. It is not only concerned with landscapes that are recognised as being special or valuable, but is also about the ordinary and the everyday – the landscapes where people live and work, and spend their leisure time. The same approach can be taken in all these different landscape settings, provided that full attention is given to the particular characteristics of each place.

2.4 The importance of the ELC definition is that it moves beyond the idea that landscape is only a matter of aesthetics and visual amenity. Instead it encourages a focus on

landscape as a resource in its own right. It provides an integrated way of conceptualising our surroundings and is increasingly considered to provide a useful spatial framework for thinking about a wide range of environmental, land use and development issues.

The ELC definition of landscape is inclusive. Article 2 of the European Landscape Convention states that 2.5

> Subject to the provisions contained in Article 15, this Convention applies to the entire territory of the Parties and covers natural, rural, urban and peri-urban

Figure 2.1A–D The European Landscape Convention definition of landscape is inclusive and covers natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas

> areas. It includes land, inland water and matine areas. It concetns landscapes that might be considered outstanding as well as everyday or degraded landscapes.
> (Council of Europe, 2000)

The definition therefore applies, among other things, to:

- all types of rural landscape, from high mountains and wild countryside to urban fringe farmland (rural landscapes);
- matine and coastal landscapes (seascapes);
- the landscapes of villages, towns and cities (townscapes).

2.6 Rural landscapes have been the main focus of attention for a number of years. Now both townscape and seascape have also emetged as particular sub-sets of 'landscape' for consideration. This guidance is equally applicable to all forms of landscape and does not separate townscape and seascape out for special treatment. However, for clatity the following paragraphs define these terms. All LVIA work needs to respond to the particular context in which it takes place. Whether the project is located in a tural, an urban or a marine context, attention will need to be paid to the distinctive character of the area and reference made to any relevant specific guidance.

Chapter 5 sets out how the different forms of landscape are assessed to provide baseline descriptions for LVIA.

Townscape

2.7 'Townscape' refers to areas where the built environment is dominant. Villages, towns and cities often make important contributions as elements in wider-open landscapes but townscape means the landscape within the built-up area, including the buildings, the relationships between them, the different types of urban open spaces, including green spaces, and the relationship between buildings and open spaces. There are important relationships with the historic dimensions of landscape and townscape, since evidence of the way that villages, towns and cities change and develop ovet time contributes to their current form and character.

Seascape

2.8 The importance of coasts and seascapes as part of our marine environment has increasingly been acknowledged, not least due to the growing pressures being placed upon them by new forms of development, notably aquaculture, offshore wind farms, tidal energy schemes and the development of coastal risk management defences. The definition of landscape from the European Landscape Convention includes seascapes and matine environments. As the UK Marine Policy Statement indicates, 'seascape should be taken as meaning landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other' (HM Government, Northern Ireland Executive, Scottish Government and Welsh Assembly Government, 2011: 21).

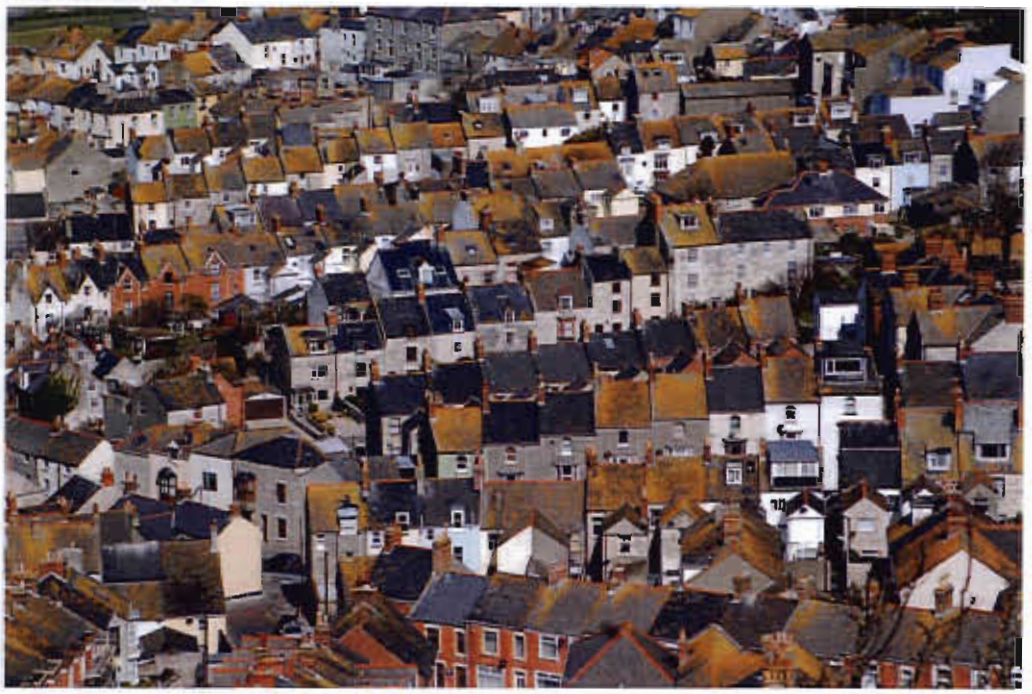


Figure 2.2 'Townscape' means the landscape within the built-up area, including the buildings and the relationships between them

Figure 2.3 'Seascape' means landscapes with views of the coast or seas, and coasts and the adjacent marine environment

2.9 This definition includes the meeting point of land and sea but also encompasses areas beyond the low water mark, and so includes both areas near to the shore and the open sea. Any assessment of the landscape and visual effects of change in marine and coastal environments should carefully consider the relationship between land and sea in coastal areas and also take account of possible requirements to consider the open sea.

Relationship to green infrastructure

2.10 Green infrastructure has come to the fore since the publication of the second edition of this guidance. It refers to networks of green spaces and watercourses and water bodies that connect rural areas, villages, towns and cities. Such networks are increasingly being planned, designed and managed to achieve multiple social, environmental and economic objectives. Green infrastructure is not separate from the landscape but is part of it and operates at what is sometimes referred to as the 'landscape scale'. It is generally concerned with sites and linking networks that are set within the wider context of the surrounding landscape or townscape. LVIA will often need to address the effects of proposed development on green infrastructure as well as the potential the development may offer to enhance it.

The importance of landscape

2.11 As the ELC makes clear, particular attention needs to be given to landscape because of the importance that is attached to it by individuals, communities and public bodies. Landscape is important because it provides:

- a shared resource which is important in its own right as a public good;
- an environment for flora and fauna;
- the setting for day to day lives – for living, working and recreation;
- opportunities for aesthetic enjoyment;
- a sense of place and a sense of history, which in turn can contribute to individual, local, national and European identity;
- continuity with the past through its relative permanence and its role in acting as a cultural record of the past;
- a source of memories and associations, which in turn may contribute to wellbeing;
- inspiration for learning, as well as for art and other forms of creativity.

2.12 In addition landscape provides economic benefits, both directly by providing an essential resource to support livelihoods, especially in agriculture, forestry and other land management activities, and in recreation and tourism, as well as indirectly through its now widely acknowledged benefits for health and wellbeing.

Landscape change and sustainable development

2.13 Landscape is not unchanging. Many different pressures have progressively altered familiar landscapes over time and will continue to do so in the future, creating new landscapes. Today many of these drivers of change arise from the requirement for development to meet the needs of a growing and changing population and economy.

They include land management, especially farming and forestry, and many forms of development, including (among many others): new housing; commercial developments; new forms of energy generation including wind turbines; new infrastructure such as roads, railways and power lines; and extraction of minerals for a variety of uses.

In the last thirty years there has been growing emphasis on the need to accommodate such change and development in ways that are sustainable. Definitions of sustainable development have been extensively debated but according to the widely accepted definition in the Brundtland report this means 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987). It is broadly agreed that it involves finding an appropriate balance between economic, social and environmental matters, and that protecting and enhancing the natural, built and historic environment is an important part of this. 2.14

As a technical process LVIA has an important contribution to make to the achievement of sustainable development. It takes place in a context where, over time, landscapes evolve and society's needs and individual and community attitudes change. This can make the professional judgements about the significance of effects identified through LVIA, and whether they are positive or negative, particularly challenging. 2.15

Climate change is one of the major factors likely to bring about future change in the landscape, and is widely considered as the most serious long-term threat to the natural environment. The need for climate change mitigation and adaptation is now well established at a policy level in the UK and beyond. There are many different ways in which mitigation and adaptation can be addressed and landscape professionals are directed to the Landscape Institute's policy document on climate change (Landscape Institute, 2008a) when considering such matters. Some climate change mitigation and adaptation projects may in themselves require EIA. Further information on climate change and EIA is available in IEMA guidance (e.g. IEMA, 2010a, 2010b). 2.16

There is some emphasis in the UK and elsewhere on appropriate renewable energy development as a means of mitigating climate change. Renewable energy development proposals are subject to the same LVIA process as any other type of development proposal, with the same need for careful siting, design and mitigation, and impartial assessment of the landscape and visual effects. It is for the competent authority to judge the balance of weight between policy considerations and the effects that such proposals may have. 2.17

The role of LVIA

LVIA must address both effects on landscape as a resource in its own right and effects on views and visual amenity. 2.18

Effects on landscape as a resource

The ELC definition of landscape supports the need to deal with landscape as a resource in its own right. In the UK this particularly reflects the emphasis on landscape character 2.19

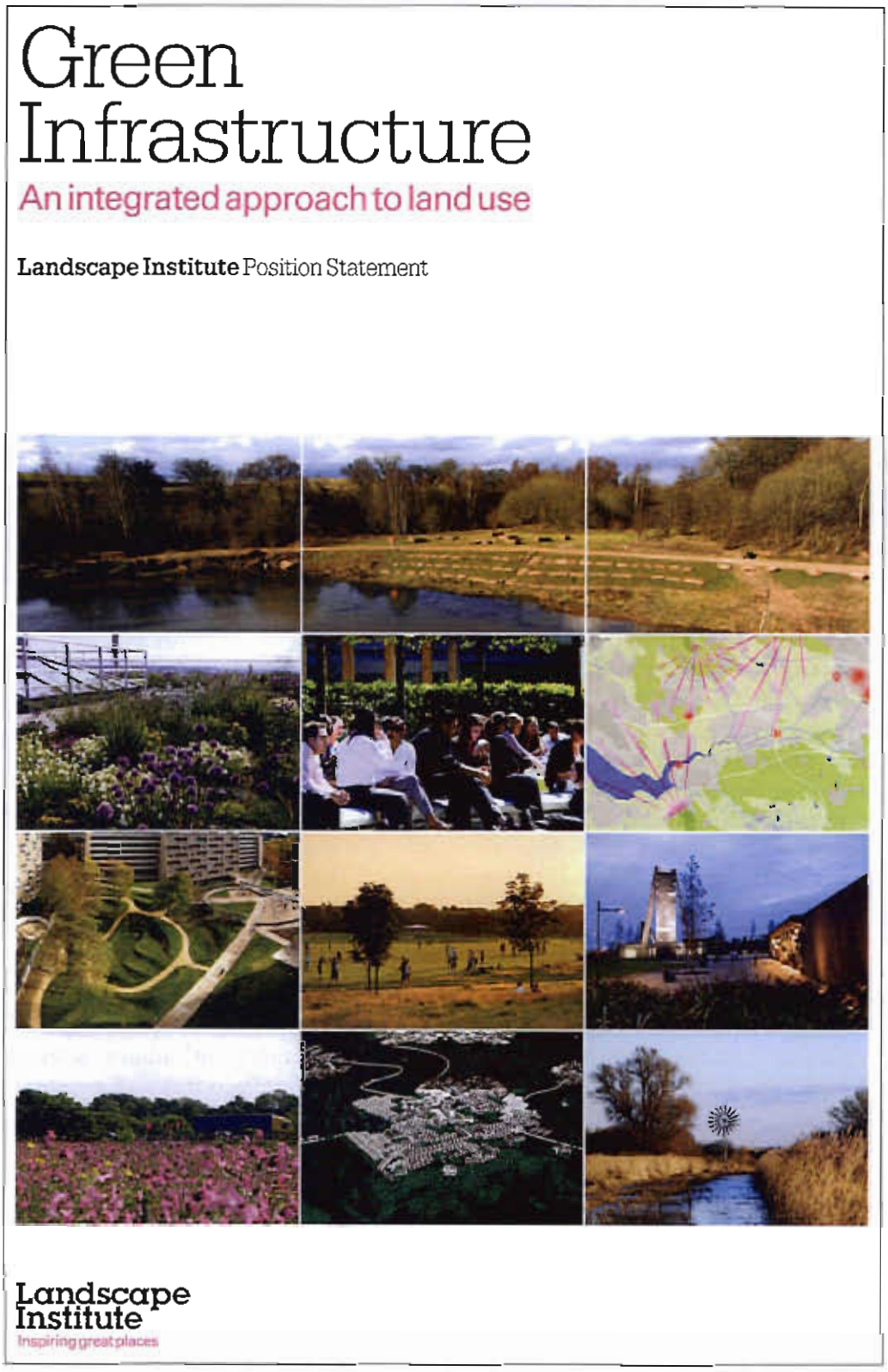


Figure 2.4 Landscape Institute position statement on green infrastructure

that has developed since the 1980s. Landscape results from the interplay of the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create the distinctive character of landscapes in different places, allowing different landscapes to be mapped, analysed and described. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of the landscape that make different places distinctive.

Views and visual amenity

When the interrelationship between people ('human beings' or 'population' in the language of the Directive and Regulations) and the landscape is considered, this introduces related but very different considerations, notably the views that people have and their visual amenity – meaning the overall pleasantness of the views they enjoy of their surroundings. 2.20

Reflecting this distinction the two components of LVIA are: 2.21

1. assessment of landscape effects: assessing effects on the landscape as a resource in its own right;
2. assessment of visual effects: assessing effects on specific views and on the general visual amenity experienced by people.

The distinction between these two aspects is very important but often misunderstood, even by professionals. LVIA must deal with both and should be clear about the difference between them. If a professional assessment does not properly define them or distinguish between them, then other professionals and members of the public are likely to be confused. 2.22

Professional judgement in LVIA

Professional judgement is a very important part of LVIA. While there is some scope for quantitative measurement of some relatively objective matters, for example the number of trees lost to construction of a new mine, much of the assessment must rely on qualitative judgements, for example about what effect the introduction of a new development or land use change may have on visual amenity, or about the significance of change in the character of the landscape and whether it is positive or negative. 2.23

The role of professional judgement is also characteristic of other environmental topics, such as ecology or cultural heritage, especially when it comes to judging how significant a particular change is. In all cases there is a need for the judgements that are made to be reasonable and based on clear and transparent methods so that the reasoning applied at different stages can be traced and examined by others. Professional judgements must be based on both training and experience and in general suitably qualified and experienced landscape professionals should carry out Landscape and Visual Impact Assessments. 2.24

Even with qualified and experienced professionals there can be differences in the judgements made. This may result from using different approaches or different criteria, or 2.25

from variation in judgements based on the same approach and criteria. Ideally, and especially for complex projects, more than one person should be involved in the assessment to provide checks and balances, especially in identifying the likely significant effects. If, for example, the professional judgements made on behalf of different interested parties vary widely it is the decision makers in the competent authority who will ultimately need to weigh up the evidence and reach a conclusion.

2.26 Landscape professionals are likely to be closely involved in the development of the scheme and its design. If they also undertake the LVIA, they must be able to take a sufficiently detached and dispassionate view of the proposals in the final assessment of landscape and visual impact. In carrying out an LVIA the landscape professional must always take an independent stance, and fully and transparently address both the negative and positive effects of a scheme in a way that is accessible and reliable for all parties concerned.

Summary advice on good practice

- LVIA should adopt the broad and inclusive ELC definition of landscape embracing, among other things, seascapes and townscapes as well as all forms of rural landscape.
- LVIA will often need to address the effects of development on green infrastructure and also the potential for enhancing it. Green infrastructure is not a separate consideration from landscape – rather it is part of it and should be treated as such.
- As a technical process LVIA has an important contribution to make to the achievement of sustainable development, including assessment of proposals for mitigation of and adaptation to climate change.
- LVIA must deal with and clearly distinguish between the assessment of landscape effects, dealing with changes to the landscape as a resource, and the assessment of visual effects, dealing with changes in views and visual amenity.
- Professional judgement is a very important part of LVIA. Ideally, and especially for complex projects, more than one person should be involved in the assessment to provide checks and balances, especially in identifying the significant effects likely to influence decisions.

Part 2

Principles, processes and presentation

Chapter 3

Principles and overview of processes

Chapter overview

- Introduction
- Components of the LVIA process in relation to EIA
- Site selection and consideration of alternatives
- Screening
- Scoping
- Project description/specification
- Baseline studies
- Identification and description of effects
- Assessing the significance of effects
- Mitigation
- Engaging with stakeholders and the public

Introduction

3.1 This chapter introduces the principles of LVIA and outlines the overall process. More detail on how the key parts of the process are carried out specifically for landscape, visual and cumulative effects are included in Chapters 5, 6 and 7 respectively. Those chapters should be read in conjunction with the overview in this chapter.

3.2 LVIA can be carried out either as part of a broader EIA, or as a standalone 'appraisal' of the likely landscape and visual effects of a proposed development. The overall principles and the core steps in the process are the same but there are specific and clearly defined procedures in EIA which LVIA must fit within.

- As a part of an EIA, LVIA is normally carried out as a separate theme or topic study. Landscape and visual matters appear as either separate or combined sections of the Environmental Statement, which presents the findings of the EIA. Landscape and visual issues may also make a contribution to other parts of the EIA, such as site selection and consideration of alternatives, and screening.
- As a standalone 'appraisal' the process is informal and there is more flexibility, but the essence of the approach – specifying the nature of the proposed change or development; describing the existing landscape and the views and visual amenity in the area that may be affected; predicting the effects, although not their likely significance; and considering how those effects might be mitigated – still applies.

Components of the LVIA process in relation to EIA

3.3 Table 3.1 summarises the main components of the impact assessment process. It shows their role in LVIA carried out both in EIA and in landscape 'appraisals' outwith the EIA process. If one of the components is shown as 'not required', especially in landscape 'appraisal', this does not mean that it is not sometimes appropriate to include this, particularly for large or complex projects. The core components of the LVIA process are highlighted. A flow chart of the EIA and LVIA process is given in Figure 3.1 (see p. 29).

Table 3.1 Components of the EIA process and the role of LVIA

Component of EIA process	*Brief description of action in this part of the process*	*LVIA role in EIA*	*LVIA role in landscape 'appraisal'*
Site selection and consideration of alternatives	Identifies opportunities and constraints relating to alternative options and makes comparative assessments of them in order to identify those with least adverse (or indeed most beneficial) effects and greatest potential for possible mitigation and enhancement.	Required (but alternatives should not be invented and it is acceptable if there are none)	May not be required but considering landscape to inform site selection is good practice
Screening	Determines whether an EIA is needed for the proposed development.	Required – by competent authority	Not required
Scoping	Makes an initial judgement about the scope of the assessment and of the issues that need to be covered under the individual topics or themes. Includes establishment of the relevant study area.	Required	Optional
Project description/ specification	Provides a description of the proposed development for the purpose of the assessment, identifying the main features of the proposals and establishing parameters such as maximum extents of the development or sizes of the elements. Normally includes description of any alternatives considered.	Required	Required
Baseline studies	Establishes the existing nature of the landscape and visual environment in the study area, including any relevant changes likely to occur independently of the development proposal. Includes information on the value attached to the different environmental resources.	Required	Required
Identification and description of effects	Systematically identifies and describes the effects that are likely to occur, including whether they are adverse or beneficial.	Required	Required

Table 3.1 continued

Component of EIA process	*Brief description of action in this part of the process*	*LVIA role in EIA*	*LVIA role in landscape 'appraisal'*
Assessing the significance of effects	Systematically and transparently assesses the likely significance of the effects identified.	Required	Not required
Mitigation	Makes proposals for measures designed to avoid/prevent, reduce or offset (or compensate for) any significant negative (adverse) effects.	Required	If required
Preparation of the Environmental Statement	Presentation of the findings of the assessment in written and graphic form.	Required	Appraisal Report
Monitoring and auditing	Monitors and audits the effects of the implementation of the proposal and of the mitigation measures proposed, especially where they are covered by conditions attached to any permission that may be given.	If required	If required

Further details of these components, and of the role that landscape and visual issues play in each, are summatised below.

Site selection and consideration of alternatives

3.4 If alternatives are considered as part of a development that is subject to EIA, landscape and visual considerations may play a part in identifying opportunities and constraints relating to site selection and making comparative assessments of the options in order to identify those with least adverse (or indeed most beneficial) effects and greatest potential for possible mitigation and enhancement. It is then important to:

- demonstrate how landscape and visual effects have been taken into consideration;
- explain the reasoning behind any decisions to reject any of the sites selected and alternatives considered in terms of their landscape and visual effects.

Screening

3.5 This step determines whether or not an EIA is required. The UK EIA Regulations set out the types of project for which an EIA is always required, known as Schedule 1

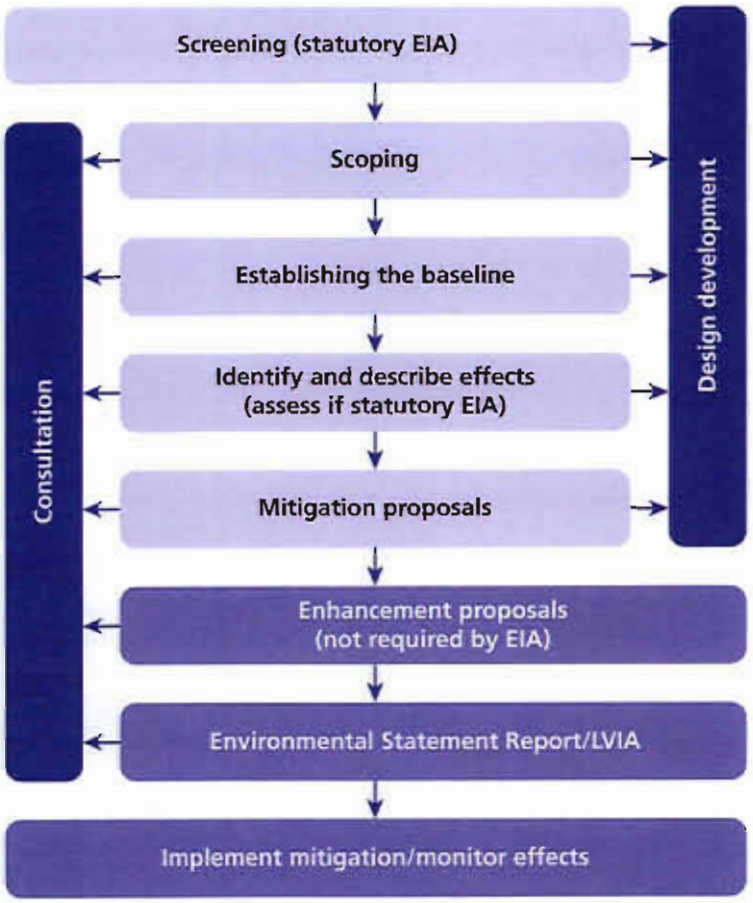


Figure 3.1 The EIA and LVIA process

development. They also include a further list of projects, in Schedule 2, which may require EIA if they are likely to have significant effects on the environment by virtue of factors such as size, nature or location. The screening process considers the characteristics of the development, its location and the characteristics of potential impacts, through reference to Schedule 3 of the Regulations and other relevant guidance, to decide whether or not an EIA is required.

3.6 The proposer of a scheme has the option to seek a screening opinion from the competent authority as to whether an EIA is required. The Regulations require that when decisions are made by the competent authority as to the need for an EIA, the criteria to be taken into account include whether or not the development is in a location that falls within a range of 'sensitive areas'. The Regulations indicate that these sensitive areas include a variety of national landscape designations. These designations, and the meaning of 'sensitivity' both in this context and in the broader context of landscape planning, are discussed further in Chapter 6.

3.7 In contributing to the screening process the landscape professional may be called upon to provide a professional opinion as to the landscape and visual considerations that

may arise in the area likely to be affected by the scheme. In making any judgements and providing such an opinion, it is important to adopt a structured and systematic approach from the outset and record all actions undertaken, information gathered and taken into consideration, assumptions made, limitations, and opinions offered, together with reasoned justifications.

Scoping

3.8 Defining the scope of the EIA study is one of the most critical parts of the process, in that it sets the context for everything else that follows. Unless a screening opinion has been sought, this may be the first opportunity for the competent authority and the developers and their advisers to make contact and ideally it should mark the beginning of an iterative dialogue. Early identification of particular concerns can lead to the resolution of issues before an application is submitted.

3.9 Scoping is the procedure by which the key topics to be examined and the areas of likely significant effects are identified. Under the Regulations, proposers of schemes may ask the competent authority for an opinion on the information to be supplied in an Environmental Statement. The objective of a scoping request is to identify what the competent authority considers to be the main likely effects of the development and to determine the topics on which the Environmental Statement should focus. The competent authority must consult a defined range of bodies (referred to as 'the consultation bodies') and consider the characteristics of the proposed development, the characteristics of the development type concerned and the environmental features likely to be affected.

3.10 An Environmental Statement is not necessarily rendered invalid if it does not cover all the matters specified in the scoping opinion provided by the competent authority. However, as the scoping opinion represents the considered view of the competent authority, a Statement which does not cover all the matters specified in the opinion will probably be subject to a request or requests for additional information. The fact that rhe competent authority has given a scoping opinion does not prevent them from requesting additional information at a later stage.

3.11 LVIA scoping should be expected to include several key matters, which should ideally be discussed with landscape professionals in the competent authority as well as with consultation bodies and inreresr groups. Views from local people may also be sought, for example through contact with parish and/or community councils. Key matters include:

- the extent of the study area to be used for assessment of landscape and visual effects (for details on how appropriate study areas are defined see Chapters 5 and 6);
- sources of relevant landscape and visual information;
- the nature of the possible landscape and visual effects, especially those deemed most likely to occur and be significant;
- the main receptors (the word used to mean those parts of the receiving landscape, and the people able to view the proposal, that may be affected by the change) of

the potential landscape and visual effects that need to be addressed in the full assessment, including viewpoints that should be assessed;
- the extent and appropriate level of detail for the baseline studies that is reasonably required to assess the landscape and visual effects of the proposed development;
- methods to be used in assessing the likely significance of the effects that may be identified;
- the requirements with respect to the assessment of likely significant cumulative landscape and visual effects.

Further details on all these matters can be found in Chapters 5, 6 and 7.

3.12 Scoping for LVIA usually requires a desk study and familiarisation with the nature of both the site and the proposed scheme and its possible effects, as well as consultations with the competent authority and the main consultation bodies. An LVIA scoping document can be produced to set out the issues and provide a focus for the competent authority's consideration. It may also include brief details on methods, assessment techniques and the presentation of information to be included in the final Environmental Statement. Although not mandatory, a scoping document can be a helpful way of providing information to the competent authority to inform their consultations with other bodies and to assist them in their considerations.

Project description/specification

3.13 An overall description of the characteristics of the proposed development, sometimes referred to as the 'project specification', makes an important contribution to an LVIA, as well as to other environmental topics in an EIA. It provides the description of the siting, layout and other characteristics and components of the development on which the landscape and visual assessment will be based. It also plays an important part in assisting understanding by all parties of exactly what is proposed. Knowledge and understanding of the proposals will grow during the course of the project. Outline information will be known at screening, and more detail at scoping and even more detail will emerge through the assessment process.

3.14 In incorporating this information into the final Environmental Statement, it is not usually necessary to repeat the information in individual sections of the Statement dealing with particular topics. Rather it is important to make sure that the project description provides all the information needed to identify its effects on particular aspects of the environment. For LVIA it is important to understand, from the project description, the essential aspects of the scheme that will potentially give rise to its effects on the landscape and visual amenity.

The key aspects of the project that need to be understood for LVIA are described in Chapter 4.

Paragraphs 3.15–3.39 describe the steps that are the core of the LVIA process illustrated in Figure 3.1.

Baseline studies

3.15 The initial step in LVIA is to establish the baseline landscape and visual conditions. The information collected will, when reviewed alongside the description of the proposed development, form the basis for the identification and description of the changes that will result in the landscape and visual effects of the proposal:

- For the landscape baseline the aim is to provide an understanding of the landscape in the area that may be affected – its constituent elemenrs, its character and the way this varies spatially, its geographic extent, its history (which may require its own specialist study), its condition, the way the landscape is experienced, and the value attached to it.
- For the visual baseline the aim is to establish the area in which the development may be visible, the different groups of people who may experience views of the development, the places where they will be affected and the nature of the views and visual amenity at those points.

Details of baseline studies for assessment of landscape and visual effects are provided in Chapters 5 and 6 respectively.

3.16 The level of detail provided should be that which is reasonably required to assess the likely significant effects. It should be appropriate and proportional to the scale and type of development and the type and significance of the landscape and visual effects likely to occur. It should also be appropriate to the different stages of the assessment process. For example, at the site selection, screening and scoping stages a preliminary desk-based site appraisal may be adequate using primarily, for example, landscape designations, existing Landscape Character Assessments, information about historic landscapes and known sites of recreational interest. Once the preferred site has been selected more comprehensive and detailed baseline studies are usually required.

3.17 Principal sources of background infotmation include the competent authority, the consultation bodies and local special interest groups and organisations. It is important that the information assembled is considered alongside information from other parallel studies, such as cultural heritage and ecology studies, to ensure an integrated approach. The EIA co-ordinator will usually play an important part in facilitating such integration across the topic areas.

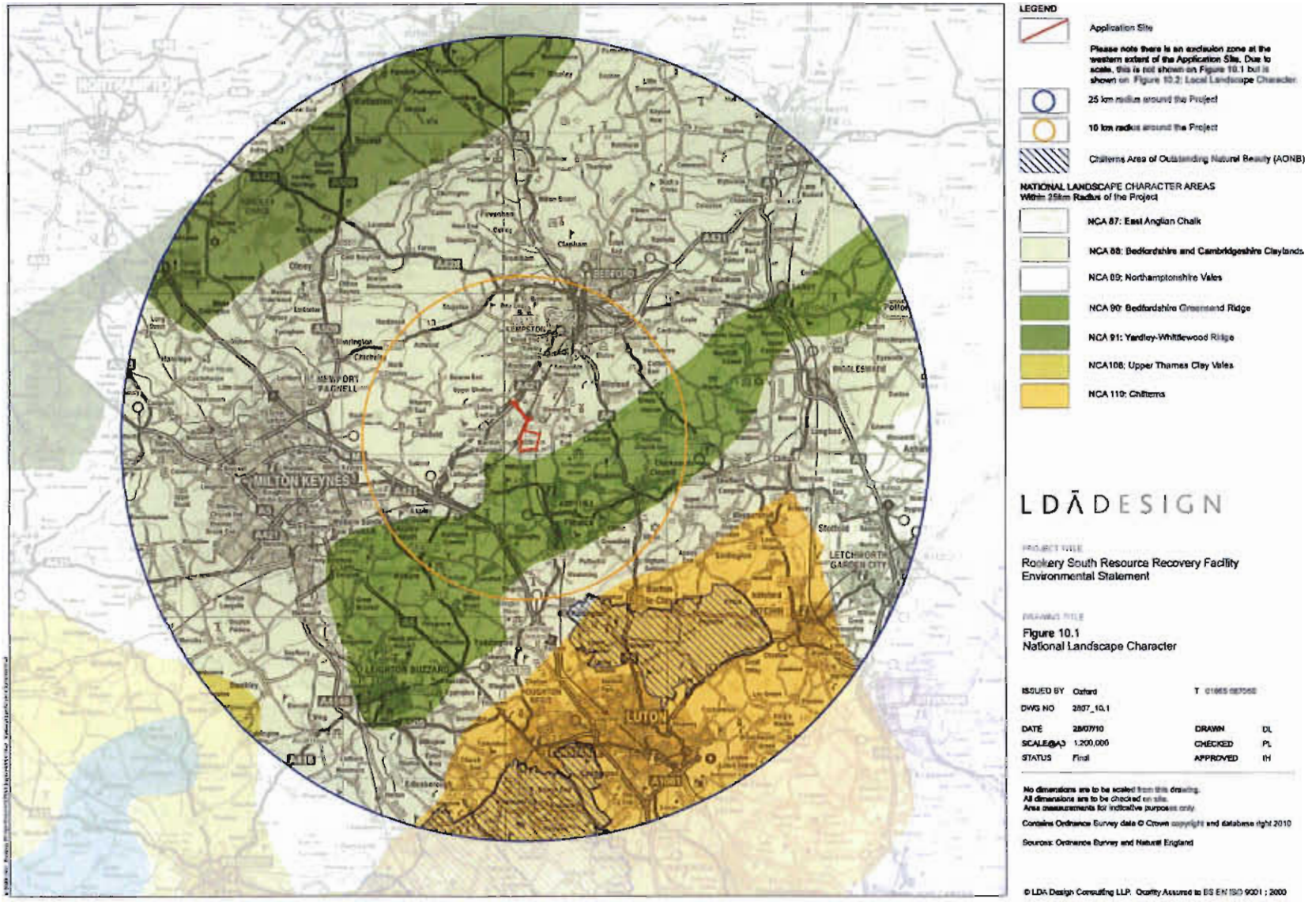


Figure 3.2 Published Landscape Character Assessment information at the national scale – part of the baseline information for an LVIA

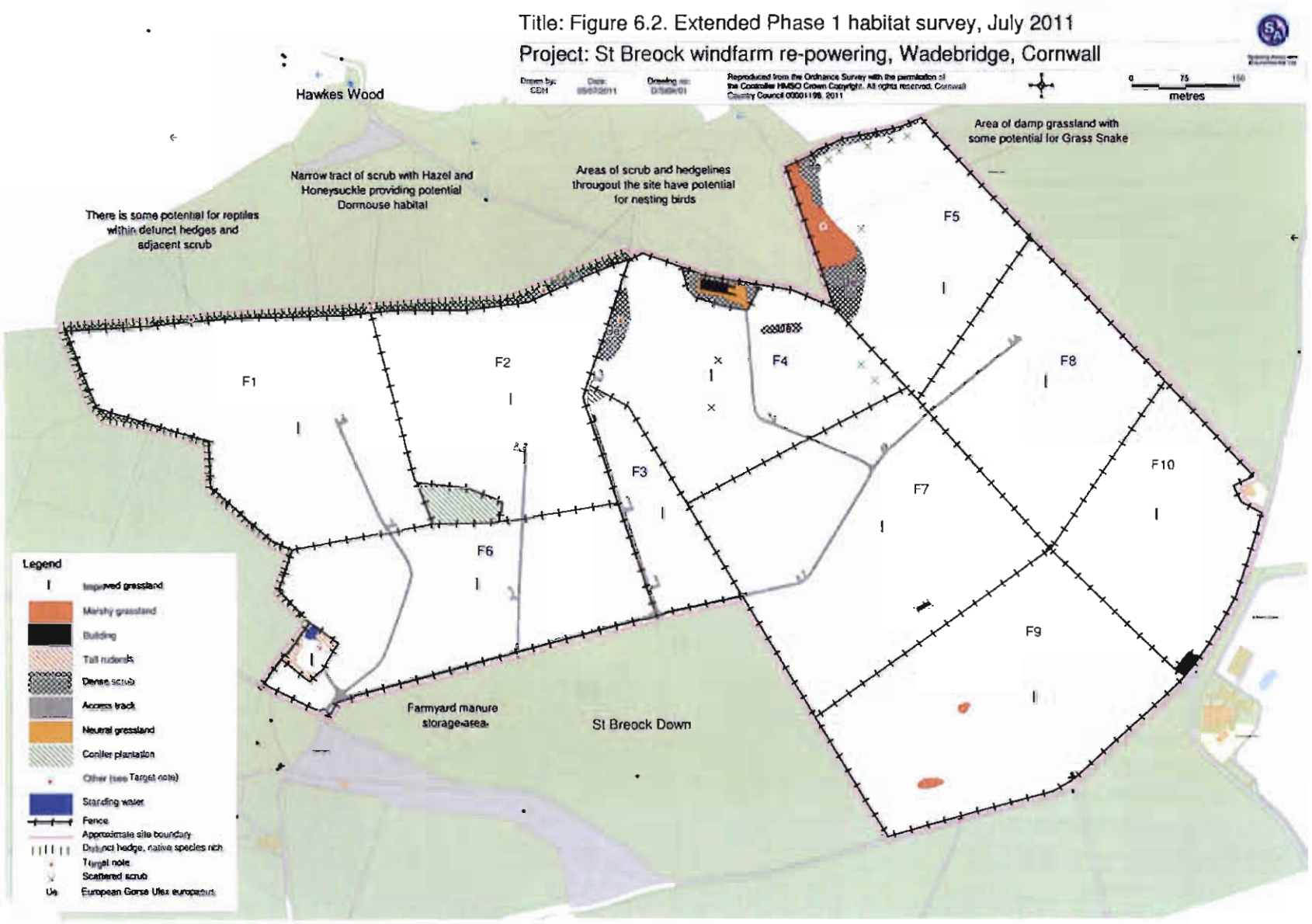


Figure 3.3 A Phase 1 habitat plan. A habitat baseline survey can assist in establishing the nature, extent and value of the landscape resource that could potentially be affected by a proposed development

Identification and description of effects

Once the key aspects of the proposed development that are relevant to landscape and visual effects have been determined, and the baseline conditions established, the likely significant effects can be predicted. There is no formulaic way of doing this. It is a matter of systematic thinking about the range of possible interactions between components of the proposed development, covering its whole life cycle (for example: for built development, usually construction, operation and decommissioning stages; for mineral extraction, usually operation, restoration and aftercare stages), and the baseline landscape and visual resource. 3.18

Some possible effects will already have been identified during the screening and/or scoping processes. Some may have been judged unlikely to occur or so insignificant that it is not essential to consider them further – this is sometimes referred to as the 'scoping out' of effects. Others may have been addressed by amendments to the scheme design through the iterative design/assessment process – either being designed out altogether or rendered not significant. Both situations must be made clear in the final Environmental Statement, so that there is transparency about how the landscape and visual considerations have influenced the final design, when compared to earlier, alternative design iterations. Other than any effects that are considered and eliminated at an earlier point, likely significant effects must be considered in the assessment stage of LVIA. 3.19

In most cases it will be essential to give detailed consideration to both: 3.20

- effects on the landscape as a resource (the landscape effects); and
- effects on views and visual amenity as experienced by people (the visual effects).

Sometimes there may be likely significant effects on the landscape resource but the development may be in a location that does not affect visual amenity significantly. It is also possible, although less common, that there may be likely significant effects on visual amenity without effects on the landscape resource.

Predicting what effects are likely depends upon careful consideration of the different components of the development at different stages of its life cycle, and identification 3.21

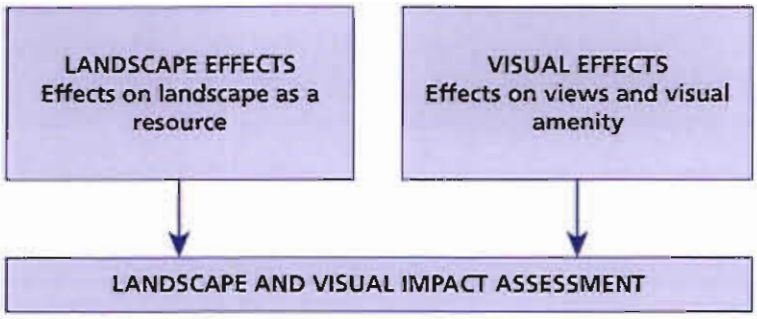


Figure 3.4 Landscape and visual effects

of the receptors that will be affected by them. In LVIA there must be identification of both:

- landscape receptors, including the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape in different areas; and
- visual receptors, that is, the people who will be affected by changes in views or visual amenity at different places.

The effects are identified by establishing and describing the changes resulting from the different components of the development and the resulting effects on individual landscape or visual receptors.

3.22 The Regulations specify that an EIA must consider the direct effects and any indirect, secondary, cumulative, short-, medium- and long-term, permanent and temporary, positive and negative effects of the development. This means that in LVIA thought must be given to whether the likely significant landscape and visual effects:

- result directly from the development itself (direct effects) or from consequential change resulting from the development (indirect and secondary effects), such as alterations to a drainage regime which might change the vegetation downstream with consequences for the landscape, or requirements for associated development, such as a requirement for mineral extraction to supply material or a need to upgrade utilities, both of which may themselves have further landscape and visual effects;
- are additional effects caused by the proposed development when considered in conjunction with other proposed developments of the same or different types (cumulative effects);
- are likely to be short term or to carry on over a longer period of time;
- are likely to be permanent or temporary, in which case their duration, as above, is important;
- are judged to be positive (beneficial) or negative (adverse) in their consequences for landscape or for views and visual amenity (this is sometimes referred to as the 'valency' of the effect but as this word has a formal definition relating to chemistry it is best avoided).

Assessment of the significance of effects takes account of the nature of the effects, as well as the nature of the receptors. These topics are discussed in Paragraphs 3.23–3.36 and in more detail in Chapters 5 and 6.

Cumulative effects are discussed in detail in Chapter 7.

Assessing the significance of effects

The EIA Directive and UK Regulations refer to projects likely to have significant effects on the environment. This means that identifying and describing the effects of a project is not enough in itself. They must also be assessed for their significance. This is a key part of the LVIA process and is an evidence-based process combined with professional judgement. It is important that the basis of such judgements is transparent and understandable, so that the underlying assumptions and reasoning can be understood by others. 3.23

LVIA, in common with other topics in EIA, tends to rely on linking judgements about the sensitivity of the receptor and about the magnitude of the effects to arrive at conclusions about the significance of the effects. These terms are effectively a shorthand 3.24

Box 3.1

EIA significance terminology

The State of EIA Practice in the UK (IEMA, 2011b: 60–62) discusses the evaluation of significance in EIA, recognising that it is a complex and often subjective process. The factors used to evaluate significance relate to both the effect and the receptor. Ongoing IEMA research into significance has identified that problems can arise where separate topic assessments use the same or similar terminology in the evaluation of significance, but define these terms differently. Partly in response to this, and also to aid the simple communication of the complexity of significance evaluation, the terms **magnitude** and **sensitivity** have become shorthand in EIA practice for the range of factors relevant to each effect (e.g. probability, reversibility, spatial extent, etc.) and receptor (e.g. value, importance, susceptibility, resilience, etc.). This shorthand terminology can generate its own problems, particularly when it appears to be the basis for the evaluation of significance and stakeholders perceive that a wider range of factors has not been explicitly considered in assessing the significance of effects. This lack of transparency reduces the quality of the EIA's findings and can lead to objections from stakeholders that cause delays to the consenting process.

To improve transparency in EIA practice and increase discussion around the complex interaction of factors leading to the determination of a significant effect, IEMA promotes the use of new overarching terminology related to the two components of significance evaluation:

1. nature of receptor (to replace the shorthand 'sensitivity');
2. nature of effect (to replace the shorthand 'magnitude').

For further detail of the relationship between the nature of the effect and the nature of the receptor please see Figure 6.3 in IEMA (2011b).

way of describing the wider array of factors that underlie the nature of the receptor likely to be affected (sensitivity) and the nature of the effect likely to occur (magnitude). Further background to this is given in Box 3.1. Landscape professionals should assess the nature of a landscape or visual receptor's sensitivity by combining judgements about its susceptibility to change arising from the specific proposal with judgements about the value attached to the receptor. When considering the nature of a predicted effect its magnitude should be determined by combining judgements about matters such as the size and scale of the change, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration. It is important to note that in this approach each judgement already combines several separate judgements.

3.25 A step-by-step process, as illustrated by Figure 3.5, should allow the identification of significant effects to be as transparent as possible, provided that the effects are identified and described accurately, the basis for the judgements at each stage is explained and the different judgements are combined in easy to follow ways.

Step 1: Assess against agreed criteria

3.26 The initial step should be to consider each effect in terms firstly of its sensitivity, made up of judgements about:

- the susceptibility of the receptor to the type of change arising from the specific proposal; and
- the value attached to the receptor;

and secondly its magnitude, made up of judgements about:

- the size and scale of the effect – for example, whether there is complete loss of a particular element of the landscape or a minor change;
- the geographical extent of the area that will be affected; and
- the duration of the effect and its reversibility.

Consideration of all these criteria should feed into a comprehensive assessment of significance.

> In Chapters 6 and 7 the meanings of 'sensitivity' and 'magnitude' are defined as they relate to landscape effects and to visual effects respectively.

3.27 In assessing the identified effects against these criteria, two key principles should normally apply:

1. Numerical scoring or weighting of criteria should be avoided, or at least treated with considerable caution, since it can suggest a spurious level of precision in the judgements and encourage inappropriate mathematical combining of scores.
2. Word scales, with ideally three or four but a maximum of five categories, are preferred as the means of summarising judgements for each of the contributing criteria.

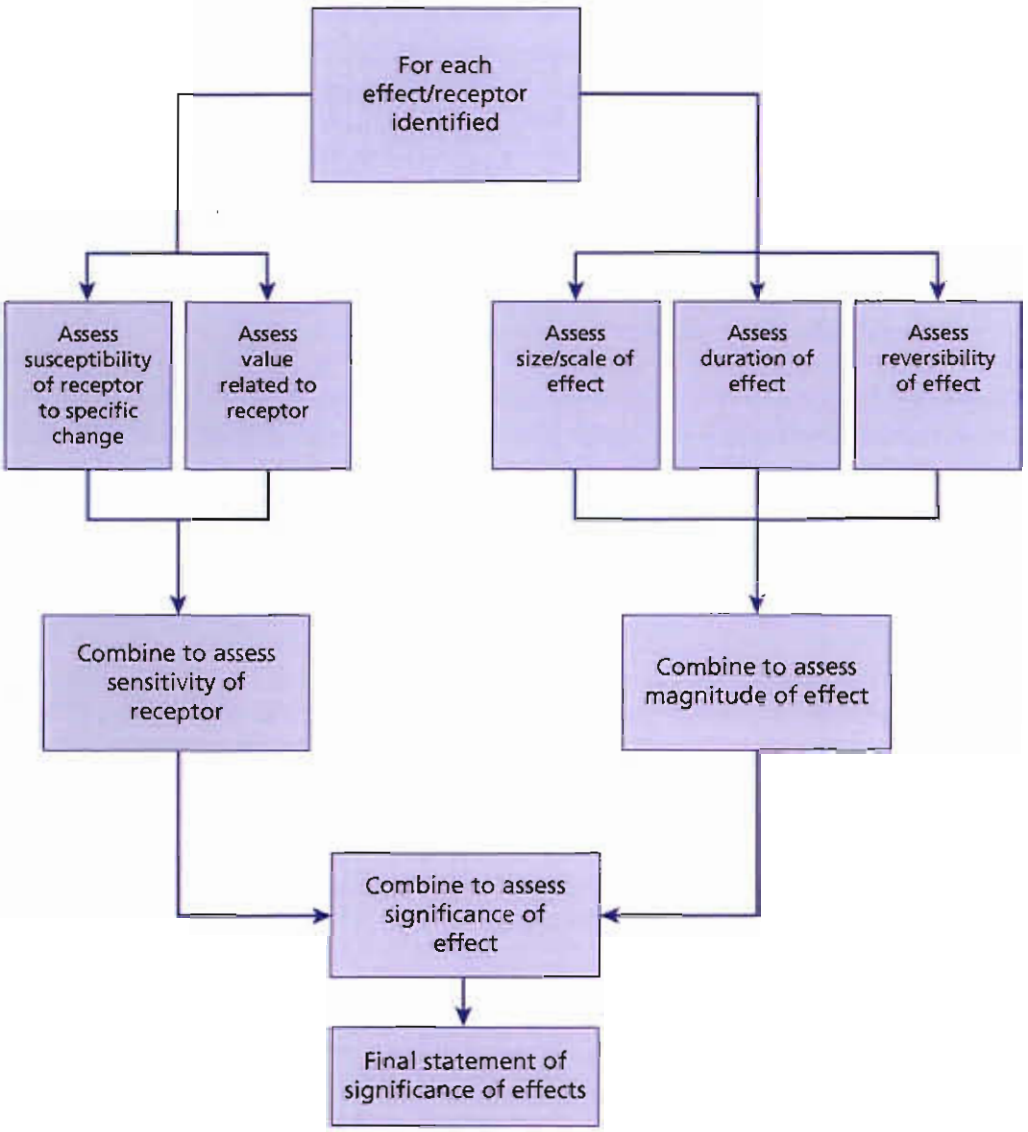


Figure 3.5 Assessing the significance of effects

The words used will usually be specific for each criterion – for example the value of landscape receptors could be categorised as international, national, regional, local authority or local community, while the duration of the effect might be categorised as short term, medium term or long term, with each specified in years. The scales that are used tend to vary from project to project but they should be appropriate to the nature, size and location of the proposed development and may need to be consistent across the different topic areas in the EIA.

Step 2: Combining the judgements

3.28 The next step is to combine the separate judgements on the individual criteria. The rationale for the overall judgement must be clear, demonstrating:

- how susceptibility to change and value together contribute to the sensitivity of the receptor;
- how judgements about scale, extent and duration contribute to the magnitude of the effects; and
- how the resulting judgements about sensitivity and magnitude are combined to inform judgements about overall significance of the effects.

3.29 Combining judgements should be as transparent as possible. It is common practice to arrive at judgements about the significance of effects simply by combining the judgements about the sensitivity of the receptor and the magnitude of the effect. This can be useful but is also an oversimplification unless it is made clear how the judgements about sensitivity and magnitude have themselves been reached.

3.30 There are several possible approaches to combining judgements, including:

- Sequential combination: The judgements against individual criteria can be successively combined into a final judgement of the overall likely significance of the effect, with the rationale expressed in text and summarised by a table or matrix.
- Overall profile: The judgements against individual criteria can be arranged in a table to provide an overall profile of each identified effect. An overview of the distribution in the profile of the assessments for each criterion can then be used to make an informed overall judgement about the likely significance of the effect. This too should be expressed in text, supported by the table.

3.31 Both of these methods have been advocated by different EIA guidance documents and both can meet the requirements of the Regulations provided that the sequence of judgements is clearly explained and the logic can be traced. The approach adopted in an LVIA will often be influenced by the overall approach in an EIA and the EIA co-ordinator will often seek internal consistency within a project.

Step 3: Judging the overall significance of the effects

3.32 The Regulations require that a final judgement is made about whether or not each effect is likely to be significant. There are no hard and fast rules about what effects should be deemed 'significant' but LVIAs should always distinguish clearly between what are considered to be the significant and non-significant effects. Some practitioners use the phrase 'not significant in EIA terms' to describe those effects considered to fall below a 'threshold' of significance but this can potentially confuse since the phrase has no specific meaning in relation to the EIA Regulations (IEMA, 2011b: 61).

3.33 It is not essential to establish a series of thresholds for different levels of significance of landscape and visual effects, provided that it is made clear whether or not they are considered significant. The final overall judgement of the likely significance of the

predicted landscape and visual effects is, however, often summarised in a series of categories of significance reflecting combinations of sensitivity and magnitude. These tend to vary from project to project but they should be appropriate to the nature, size and location of the proposed development and should as far as possible be consistent across the different topic areas in the EIA.

When drawing a distinction between levels of significance is required (beyond significant/not significant) a word scale for degrees of significance can be used (for example a four-point scale of major/moderate/minor/negligible). Descriptions should be provided for each of the categories to make clear what they mean, as well as a clear explanation of which categories are considered to be significant and which are not. It should also be made clear that effects not considered to be significant will not be completely disregarded. 3.34

In reporting on the significance of the identified effects the main aim should be to draw out the key issues and ensure that the significance of the effects and the scope for reducing any negative/adverse effects are properly understood by the public and the competent authority before it makes its decision. This requires clear and accessible explanations. The potential pitfalls are: 3.35

- over-reliance on matrices or tabular summaries of effects which may not be accompanied by clear narrative descriptions;
- failure to distinguish between the significant effects that are likely to influence the eventual decision and those of lesser concern;
- losing sight of the most glaringly obvious significant effects because of the complexity of the assessment.

To overcome these potential problems, there should be more emphasis on narrative text describing the landscape and visual effects and the judgements made about their significance. Provided it is well written, this is likely to be most helpful to non-experts in aiding understanding of the issues. It is also good practice to include a final statement summarising the significant effects. Tables and matrices should be used to support and summarise descriptive text, not to replace it. 3.36

Mitigation

Measures which are proposed to prevent, reduce and where possible offset any significant adverse effects (or to avoid, reduce and if possible remedy identified effects), including landscape and visual effects, should be described. The term 'mitigation' is commonly used to refer to these measures; however, it is not a term used in the EIA Regulations although it is used in some specific legislation, such as the Electricity Act 1989, and in guidance. Mitigation measures are not necessarily required in landscape appraisals carried out for projects not subject to EIA procedures, although some local authorities may request them and even if they do not it is nevertheless often helpful to think about ways of dealing with any negative effects identified. 3.37

As EIA practice has evolved the terminology used to refer to mitigation measures has been adapted; for example, it has become common practice to use the term 3.38

Figure 3.6 Plan showing mitigation measures designed to reduce the effects on surrounding visual receptors and integrate the proposal into the surrounding landscape

'compensate' instead of 'offset'. While the terminology of the EIA Regulations takes precedence, the alternatives may be used provided they are explained. Both terms are referred to in this guidance.

3.39 Enhancement is not a formal requirement of the Regulations. It is often referred to incorrectly as an outcome of proposed mitigation measures – for example where planting is proposed to mitigate landscape and/or visual effects but will also achieve an enhancement of the baseline condition of the landscape. In practice enhancement is not specifically related to mitigation of adverse landscape and visual effects but means any proposals that seek to improve the landscape and/or visual amenity of the proposed development site and its wider setting beyond its baseline condition.

Mitigation and enhancement are both closely related to the development proposal and its design. Both are discussed in further detail in Chapter 4.

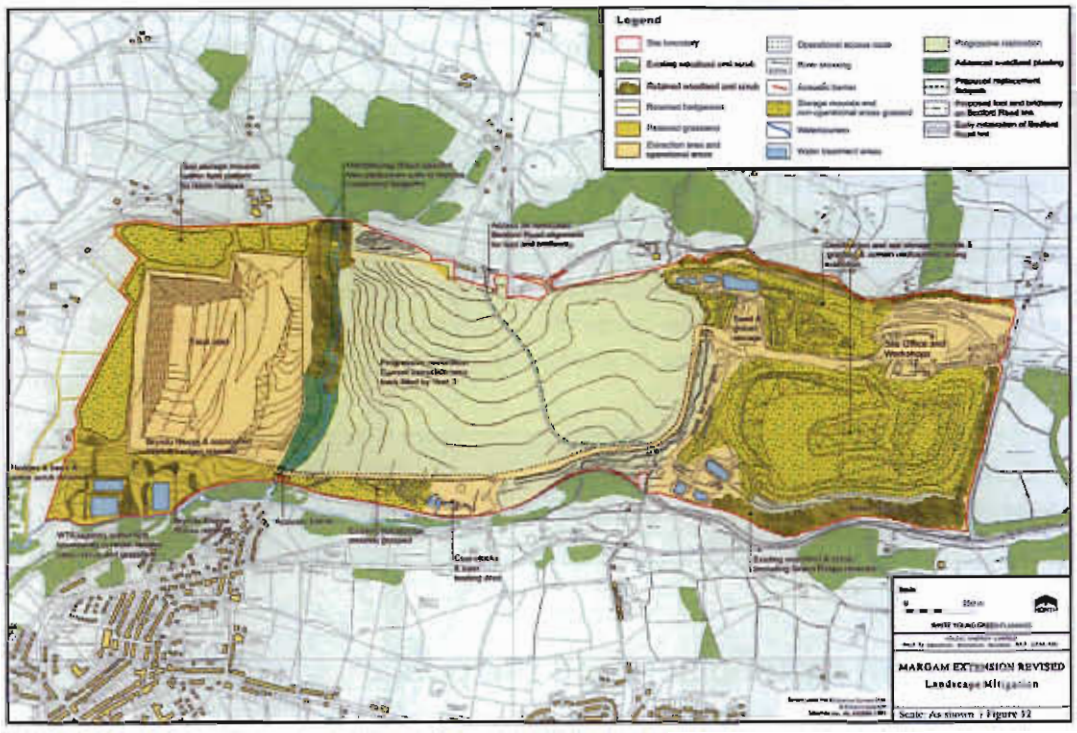
Engaging with stakeholders and the public

3.40 In general the EIA procedures only formally require consultation with the public at the stage of submission and review of the Environmental Statement, although in some cases there may be a requirement for pre-application consultation. Nevertheless there are considerable benefits to be gained from involving the public in early discussion of the proposals and of the environmental issues that may arise. This can make a positive contribution to scoping the landscape and visual issues.

3.41 Since the last edition of this guidance was published there has been growing emphasis on consultation and public involvement in EIA. This has arisen principally from the ratification by the UK in February 2005 of the Aarhus Convention (UNECE, 1998), which encourages widespread, timely and effective participation in environmental decision making, and has been reinforced by changes in legislation on planning and related matters that place greater emphasis on local communities.

3.42 Consultation is an important part of the Landscape and Visual Impact Assessment process, relevant to many of the stages described above. It has a role in gathering specific information about the site, and in canvassing the views of the public on the proposed development. It can be a valuable tool in seeking understanding and agreement about the key issues, and can highlight local interests and values which may otherwise be overlooked. With commitment and engagement in a genuinely open and responsive process, consultation can also make a real contribution to scheme design.

3.43 The timing of engagement with the public and other interested parties will depend upon many factors, including the nature of the development, but, in general, the earlier the better. Well-organised and timely consultation and engagement with both stakeholders and public can bring benefits to a project, including improved understanding of what is proposed and access to local environmental information that might otherwise



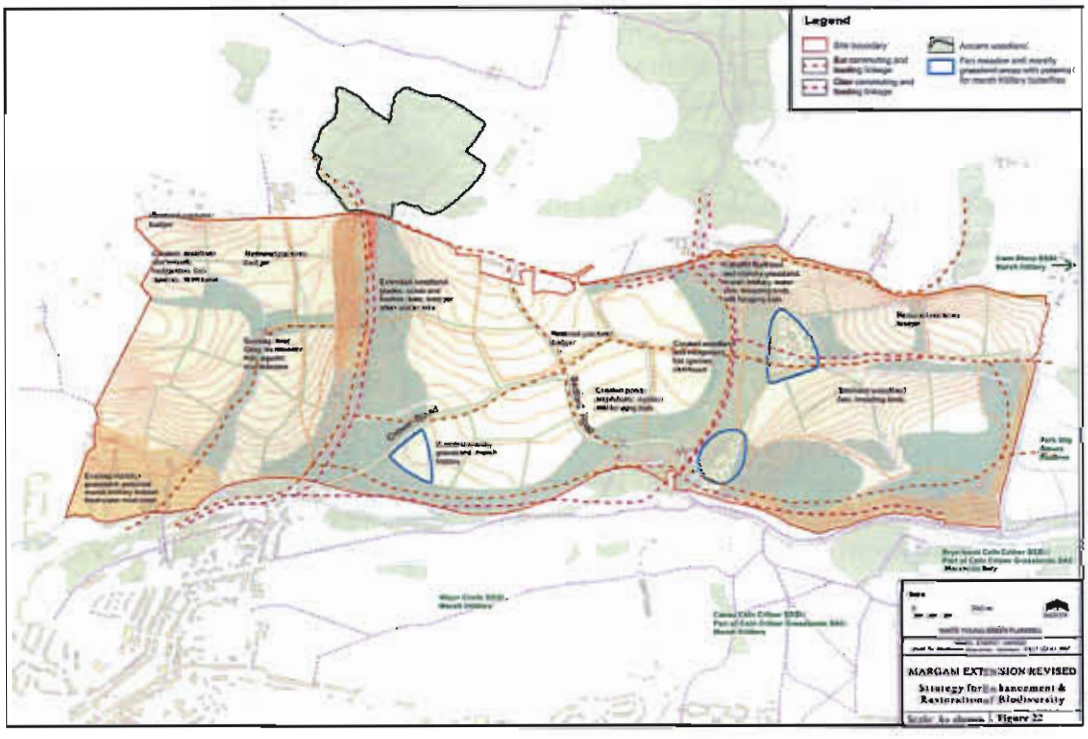


Figure 3.7A–B Example of a comprehensive strategy for mitigating landscape effects during the operational life of a coal surface mine, complemented by specific measures for ultimate ecological enhancement

not have been available to the assessment. This can be of benefit to LVIA in providing better understanding of the landscape and of local attitudes to it. In its most useful form, participation in consultation will improve the quality of the information influencing the scheme design, and may result in positive changes to the design.

Successful engagement will be assisted by the following good practice principles, which although not specific to LVIA should provide a starting point for practitioners involved in LVIA, both within and without the EIA procedures. 3.44

- Consultation must be genuine and open. The temptation to make the most of consultation for information gathering while being reluctant to disseminate information should be resisted.
- The timing of consultation should be carefully planned to prevent premature disclosure, which might encourage blight or make developers commercially vulnerable. There may be occasions where controlled release of information or confidentiality safeguards are required.
- Requests for participation by stakeholders and the public should be timely. There is no point in seeking ideas and views if it is actually too late for the scheme design to be modified, but equally it is difficult for people to respond if consulted too early when the proposals are not sufficiently far advanced for the range of implications to be clear.
- Sufficient time must be allowed for those consulted to be able to consider and act on the information provided.
- The objectives of consultation should be clearly stated. Information presented to consultees should be appropriate in content and level of detail, clearly identifying those issues on which comment is being sought.

Methods of engaging with different groups should be carefully considered and appropriate. The approach to consultation is likely to be common across all the EIA topics and determined by the EIA co-ordinator, and LVIA consultation will need to fit in with this. There is also a great deal of guidance available on appropriate consultation and participation techniques, which should be consulted where appropriate.[1] 3.45

Summary advice on good practice

- LVIA can be carried out either as part of a broader EIA which considers the likely significant landscape and visual effects, or as a standalone 'appraisal' of the possible landscape and visual effects of a proposed development.
- The overall principles and the core steps in the EIA and 'appraisal' processes are the same, but there are specific and clearly defined procedures in EIA which LVIA must fit within.
- As a part of an EIA, landscape and visual issues are dealt with in a separate topic assessment but may also make a contribution to other parts of the EIA, such as site selection and consideration of alternatives, and screening.
- In a standalone 'appraisal' the process is informal and there is more flexibility, but the essence of the approach still applies.

If **alternatives** are considered as part of a development that is subject to EIA, landscape and visual considerations may play a part in identifying opportunities and constraints relating to site selection and in making comparative assessments of the options.

In contributing to the **screening** process the landscape professional may be called upon to provide a professional opinion as to the landscape and visual issues that may arise in the area likely to be affected by the scheme.

For LVIA, **scoping** should be expected to consider the extent of the study area(s); sources of information; the possible effects that might occur; the main receptors to be considered; the extent and the appropriate level of detail for the baseline studies; methods to be used in assessing significance; and the approach to assessment of cumulative landscape and visual effects.

Establishing the **baseline landscape and visual conditions** will, when reviewed alongside the description of the development, form the basis for the identification and description of the landscape and visual effects of the proposal.

Identifying landscape and visual effects requires systematic thinking about the range of possible interactions between aspects of the proposed development and the baseline landscape and visual situation.

In most cases it will be essential to give detailed and equal consideration to both effects on the landscape as a resource (see Chapter 5) and effects on views and visual amenity as experienced by people (see Chapter 6).

All types of effect should be identified, and for each effect a judgement should be made about whether it is positive/beneficial or negative/adverse.

Assessing the significance of landscape and visual effects is a matter of judgement. It is vital that the basis of such judgements is transparent and understandable, so that the underlying assumptions and reasoning can be examined by others.

A step-by-step approach should be taken to make judgements of significance, combining judgements about the nature of the receptor, summarised as its sensitivity, and the nature of the effect, summarised as its magnitude.

The contribution of judgements about the individual criteria contributing to sensitivity and magnitude should be clear, and the approach to combining all the judgements to reach an overall judgement of significance should be as transparent as possible.

LVIAs should always distinguish clearly between what are considered to be the significant and non-significant effects.

It is not essential to establish a series of thresholds for different levels of significance of landscape and visual effects, provided that it is made clear whether or not they are considered significant.

If, however, more distinction between levels of significance is required a word scale for degrees of significance can be used (for example a four-point scale of major/moderate/minor/negligible).

Reporting on the assessment of the significance of the identified effects in LVIA should aim to provide information in a manner that will help decision makers.

To ensure that the reasoning behind the judgements is clear there should be more emphasis on narrative text describing the landscape and visual effects and the judgements made about their significance, with tables and matrices used to support and summarise the descriptive text, not to replace it. The key issues must be made clear.

In accordance with the EIA Directive and relevant country Regulations, **mitigation measures** should be proposed to prevent/avoid, reduce and where possible offset/remedy any significant adverse landscape and visual effects identified. It has become common practice to use the term 'compensate' instead of 'offset'.

Enhancement is not a formal requirement of the Regulations. 'Enhancement' means any proposals that seek to improve the landscape of the site and its wider setting beyond its baseline condition, and is not specifically related to mitigation of adverse landscape and visual effects.

Well-organised and timely **consultation and engagement** with both stakeholders and public can bring substantial benefits to a project.

Chapter 4

The proposed development, design and mitigation

Chapter overview

- Understanding the proposed development
- LVIA and the design process
- Consideration of alternatives
- Describing the proposals
- Stages in the project life cycle
- Mitigation of landscape and visual effects
- Enhancement
- Securing implementation of mitigation and enhancement measures

Understanding the proposed development

4.1 Information about the proposed development needs to be assembled, considered in relation to its relevance for assessment purposes, kept under review during the planning and design stages of a project, updated where appropriate and then 'fixed' to enable the assessment of effects to be finalised. This information is needed for LVIA as well as for other ropics within an EIA. It should include, as a minimum:

- a description of the project that is sufficiently detailed for assessment purposes;
- information about alternatives that have been considered, where relevant;
- information concerning relevant stages in the project's life cycle including, as appropriate, construction, operation, decommissioning and restoration/reinstatement stages.

4.2 The assessment of likely effects must be based on a description of the development rhat is sufficiently detailed to ensure that the effects can be clearly identified, although the level of detail provided will vary from project to project. It is now established in case law that the project must be defined in sufficient detail, even in an outline planning application, to allow its effects on the environment to be identified and assessed.[1] This acknowledges that details of a projecr may evolve over a number of years, but that this must be within clearly defined parameters established through the planning process.

4.3 An EIA prepared in these circumstances must similarly recognise that the project may evolve, within the agreed parameters, and be able to identify the likely significant effects of such a flexible project. Within the defined parameters the level of detail of the proposals must be such as to enable proper assessment of the likely environmental effects and consideration of the necessary mitigation. It may be appropriate to consider a range of possibilities, including a reasonable scenario of maximum effects, sometimes referred to as the 'worst case' situation. Mitigation proposals will need to be adequate to cope with the likely effects of this worst case. Separate issues may arise in projects involving multi-stage consents, involving a principal decision and then another implementing decision, usually relating to planning conditions. The effects on the environment must be identified and assessed at the time when the principal decision is considered but assessment of effects that are not identifiable then must be undertaken at a subsequent

stage. Multi-stage EIA is still an evolving area of practice but voluntarily leaving for later assessment effects that could have been identified earlier is nor acceptable.

4.4 Where the landscape professional considers that key data on project characteristics is lacking, it will be necessary to add a caveat to the assessment. If going further and estimating what is likely to occur, perhaps based upon a reasonable maximum effects or 'worst case' scenario, then the assumptions on which such judgements may be based should be made explicit. The sources of information used in the assessment should also be clearly set out and, prior to finalising the assessment and the Environmental Statement, there should be communication with the EIA co-ordinator to ensure the information used is up to date, to agree the scope of any maximum effects or 'worst case' scenario that is to be used and to ensure that different topic assessments are using consistent assumptions about the proposal. If they are not the Environmental Statement will need to explain and justify any such variations.

LVIA and the design process

4.5 Design plays an increasingly important part in the development planning process. This has been emphasised by the introduction of statutory requirements for the production of design statements, or design and access statements, for many planning proposals in different parts of the UK. Such statements explain the design principles and concepts underpinning the proposal and the process through which it has evolved. This includes the ways in which the context of the development, including the landscape, has been appraised or assessed and how the design of the development takes that context into account in relation to its proposed use.

4.6 EIA itself can be an important design tool. It is now usually an iterative process, the stages of which feed into the planning and design of the project. The iterative design and assessment process has great strength because it links the analysis of environmental issues with steps to improve the siting, layout and design of a particular scheme. Site

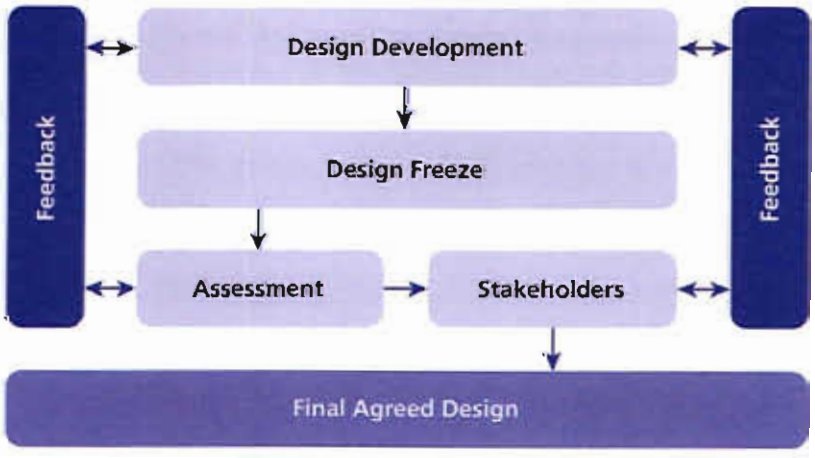


Figure 4.1 Feedback loops in design

planning and detailed design, as well as initial appraisal of a development project in the screening and scoping stages, are informed by and respond to the ongoing assessment as the environmental constraints and opportunities are revealed in progressively greater detail and influence each stage of decision making. This approach can result in more successful and cost-effective developments and can reduce the time required to complete the assessment. Such an iterative approach is appropriate to any form of new development of whatever scale or type and applies equally to informal 'appraisal' of projects falling outside the EIA requirements.

4.7 Landscape professionals should be involved as early as possible in this iterative approach to ensure that the likely landscape and visual effects of a proposal play an important part in the evolution of a development proposal. This is good practice as it allows analysis of the landscape and visual character of a site and its context, and approaches to siting and design, to minimise possible landscape and visual effects early in the process. Projects may otherwise progress to a stage where the opportunity to minimise effects can no longer be realised by the time the landscape professional becomes involved. It is better to get the siting and design right first than to rely on costly mitigation measures. Early involvement also allows opportunities for landscape enhancement to be identified before the design has progressed too far.

4.8 Once the preferred development option has been selected, the landscape professional initially works with the design team to scope the range of possible effects in more detail. Then, as the scheme is developed more fully, work continues to identify and describe the landscape and visual impacts that are likely to occur, to propose appropriate measures to avoid or reduce the adverse effects and, if possible and appropriate, to promote potential benefits. This may result in a modified scheme design, allowing further cycles of impact prediction and mitigation until nothing further can be done in the design stages.

4.9 Research has shown that the iterative design approach to EIA is now common among practitioners and its value is widely recognised (IEMA, 2011b). It can, however, give rise to difficulties in deciding whether or not likely effects that have been avoided through the design process should still be included in the final Environmental Statement. Some argue that they should be, in order to demonstrate how environmental considerations have influenced scheme design to achieve better final solutions. On the other hand, this to some degree conflicts with the need to concentrate on the significant environmental effects of the development as proposed.

4.10 Landscape professionals will need to find ways of dealing with this issue in preparing material for inclusion in the final Environmental Statement. There is no simple solution but useful approaches are:

- To include in the Environmental Statement a section or sections related to 'Design Development' or 'Design Evolution', where the process of early avoidance or reduction of landscape and visual impacts through the adoption of particular siting and design approaches as integral parts of the proposed development is clearly explained. This should clearly show the approach taken to avoiding or minimising adverse landscape and visual effects, and how these considerations have been balanced against other development considerations to reach the development proposal which forms the basis for the LVIA and other topic assessments in the EIA.

- To include in the Environmental Statement simple tables that summarise the possible effects identified in the eatly stages of the project development alongside the measures incorporated into the design to overcome them. If dealt with briefly in this way, the desire for transparency about all srages of rhe design and about the incorporation of mitigation measures would be met.

These approaches are not mutually exclusive and may support each other, but a balance is needed to ensure that the Environmental Statement does not become excessively long and the focus is still on the significant effects of the final scheme as submitted.

Consideration of alternatives

4.11 It is not a requirement that alternatives should be identified and considered. However, if they have been (and it is considered that they should be, as a means of achieving potentially more sustainable development) then an outline description should be provided of any alternatives considered, together with an indication of the main reasons (including environmental reasons) for the final choice. The iterative design and assessment process can be helpful in providing evidence that such alternative sites and/or designs have been assessed in terms of their landscape and visual effects. It is therefore important to:

- record how the scheme has developed throughout the life of the project;
- demonstrate how landscape and visual effects have been taken into account;
- show why some alternative options have been rejected on the basis of landscape and visual considerations.

4.12 The landscape professional should usually expect to advise on a number of different alternatives, which might include:

- alternative locations or sites;
- different approaches in terms of scheme design, or the size/scale/orientation of the proposed development;
- alternative site layouts, access and servicing arrangements;
- a 'do minimum' scenario that may be a genuine alternative to the development proposed – it might, for example, include only essential maintenance and improvement work.

4.13 Depending on the type of study that is being carried out and the stage reached in the assessment process, more than one project alternative may be taken forward for comparative assessment, with a detailed project description required for each alternative. The most common examples of this occur in the field of linear development, such as transport infrastructure, long-distance gas or water pipes, grid connections and flood risk management structures along rivers. In such cases appraisals of alternative routes are frequently undertaken before a decision is made on the preferred option. A more detailed assessment is then carried out of the chosen route. Other types of project can also benefit from a similar hierarchical approach to the consideration of alternatives.

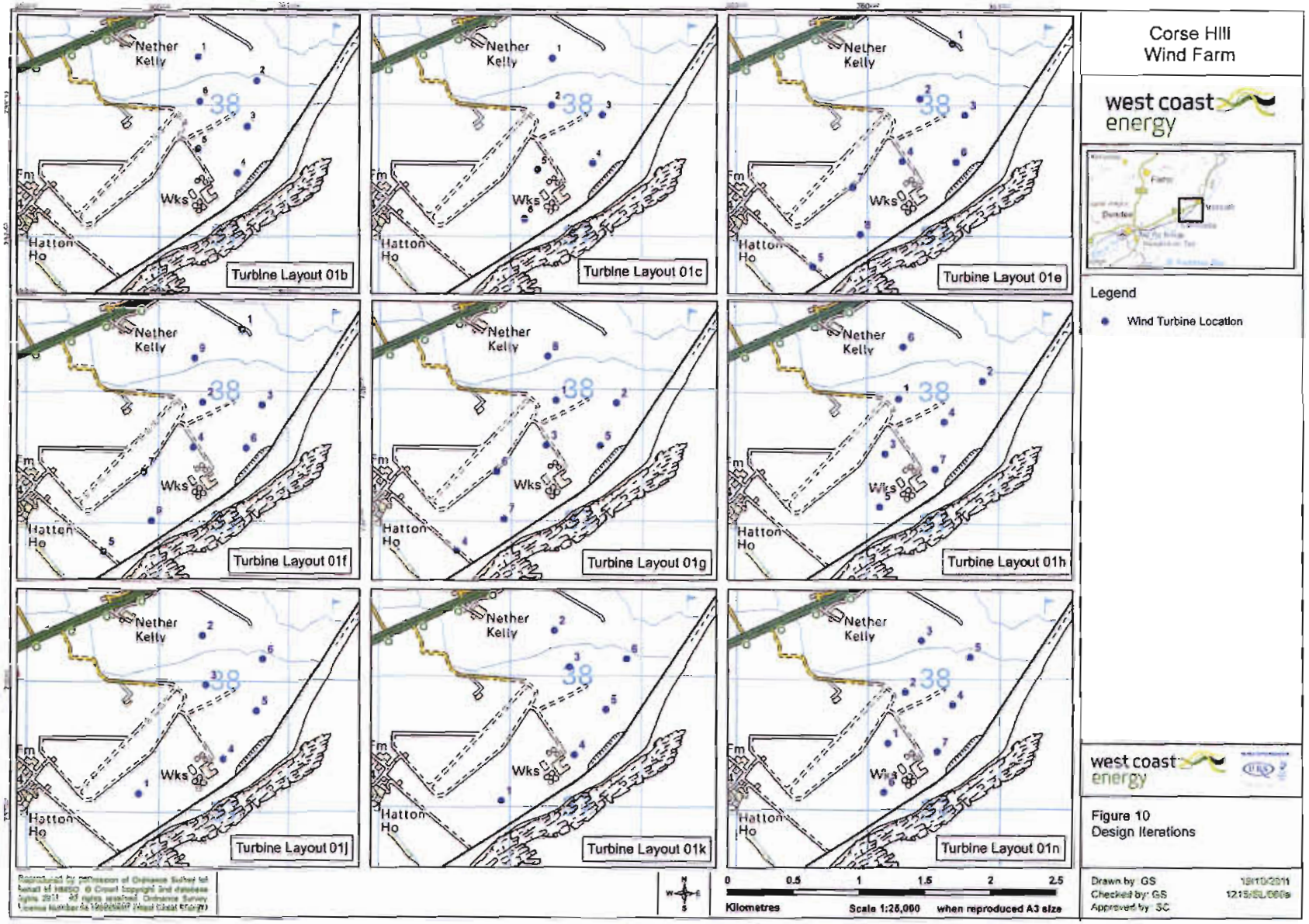


Figure 4.2 An example of iterative design of layouts for a wind farm development

Describing the proposals

The project description/specification should provide a clear and concise but also comprehensive description of the development proposal. As a minimum it should describe the siting, layout and characteristics of the proposed development. The project description/specification, which is the common point of reference for all topics addressed, is usually a separate section of the Environmental Statement. Only particularly televant features and aspects of the project need to be reported on separately in the part of the Environmental Statement dealing with the assessment of landscape and visual effects. 4.14

It is essential that the development proposals are clearly presented and illustrated. Ideally this requites: 4.15

- easy-to-read proposal maps at a size appropriate to the scale of the development, together with other selected drawings, which may include cross sections;
- for complex projects or those of long duration, for example power stations or major mineral workings, a series of drawings showing the situation at different stages, such as construction, operation, and decommissioning, or different phases in the development;
- illustrations that will help the reader to gain a proper understanding of what is proposed, including:
  - layout plans of the main design elements, access and site circulation, land uses, contours and site levels;
  - cross sections and elevations of buildings and other important elements, including key dimensions;
  - the proposed landscape framework including landform and planting;
  - appropriate sketches, photomontages or other forms of visualisation.

Good practice in presenting landscape and visual effects in the Environmental Statement is described more fully in Chapter 8.

Stages in the project life cycle

The characteristics of projects, and hence the possible landscape and visual effects they may have, are likely to vary throughout the life of the project. The construction, operation, decommissioning and restoration/reinstatement phases of a development are usually characterised by quite different physical elements and activities. A separate, self-contained description of the development at each stage in the life cycle is therefore needed to assist in understanding the scheme and then in prediction of landscape and visual effects. 4.16

Construction stage

4.17 Depending on the nature of the project, the relevant information for the construction stage could include:

- the location of site access and haul routes (which are likely to differ from permanent access proposals), movement of traffic and machinery;
- the type of machinery to be used, including size and, where relevant, colour;
- the positions and scale of cut, fill, borrow, disposal and other working areas;
- the origin and nature of materials and locations for stockpiles;
- the type and location of construction equipment and plant;
- the provision of utilities, such as water, drainage, power and lighting, including the nature and times of temporary site lighting when work is in progress;
- the scale, location and nature of temporary parking, and on-site accommodation;
- measures for the temporary protection of existing features and temporary screening;
- the programme of work, including any proposed phasing of construction.

For minerals projects the construction phase is equivalent to the preliminary or site establishment stage, and may include establishment of features such as soil storage or screening bunds and mounds, and water treatment areas.

Operational stage

4.18 The aspects of the operational stage which may be most relevant to the Landscape and Visual Impact Assessment could include:

- the phasing of the development over the operational stage;
- the location, scale and design of buildings, structures, mineral processing plant and other features, including choice and colour of materials;
- for minerals projects, which include both surface and underground mines, features such as the excavation void and its phasing, and overburden, spoil or quarry waste storage mounds;
- details of servicing arrangements, storage areas, infrastructure/utilities and/or other structures;
- access arrangements and traffic movements;
- lighting;
- car parking;
- the noise and movement of vehicles in so far as they may affect perceptions of tranquillity in the landscape;
- visible plumes from chimneys;
- signage and boundary treatment(s);
- outdoor activities that may be visible;
- the operational landscape, including landform, structure planting and hard landscape features;
- land management operations and objectives.

Decommissioning and restoration/reinstatement stage

This stage may also give rise to landscape and visual effects. Important aspects could include: 4.19

- decommissioning and site restoration activities (including for example demolition, deconstruction, and dismantling of buildings and structures, and backfilling of voids and landform restoration for minerals projects), movement of materials and plant around the site and temporary access arrangements;
- residual buildings and structures;
- after-use potential and plans;
- the disposal or recycling of wastes and residues.

Information requirements

For each of these stages in the project life cycle and, where relevant, for the various scheme components, a range of qualitative and quantitative information will be valuable in giving a proper and proportionate understanding of what is proposed, to assist in assessments of landscape and visual effects. The information needed may include: 4.20

- areas under different uses;
- dimensions of major plant, buildings and structures, and landform features;
- volumes of material;
- numbers of scheme components such as houses and parking spaces;
- the design of scheme components (including layout, scale, style and distinctiveness);
- the form of scheme components (including shape, bulk, pattern, edges, orientation and complexity);
- materials (including information concerning texture, colour, shade, reflectivity and opacity);
- operational characteristics, including plumes and moving structures;
- movements of plant, materials, vehicles and people, both construction workforce and occupants, during operation.

While it is a requirement that the development is described in sufficient detail to enable the effects to be identified and assessed it is also recognised that it is often difficult to provide accurate and complete information on all the varied aspects of a development proposal (see Paragraphs 4.2 and 4.3 for further information). In that case the assumptions made should be stated.

Mitigation of landscape and visual effects

In accordance with the EIA Regulations, measures proposed to prevent/avoid, reduce and where possible offset or remedy (or compensate for) any significant adverse landscape and visual effects should be described. In practice such mitigation measures are now generally considered to fall into three categories: 4.21

1. primary measures, developed through the iterative design process, which have become integrated or embedded into the project design;

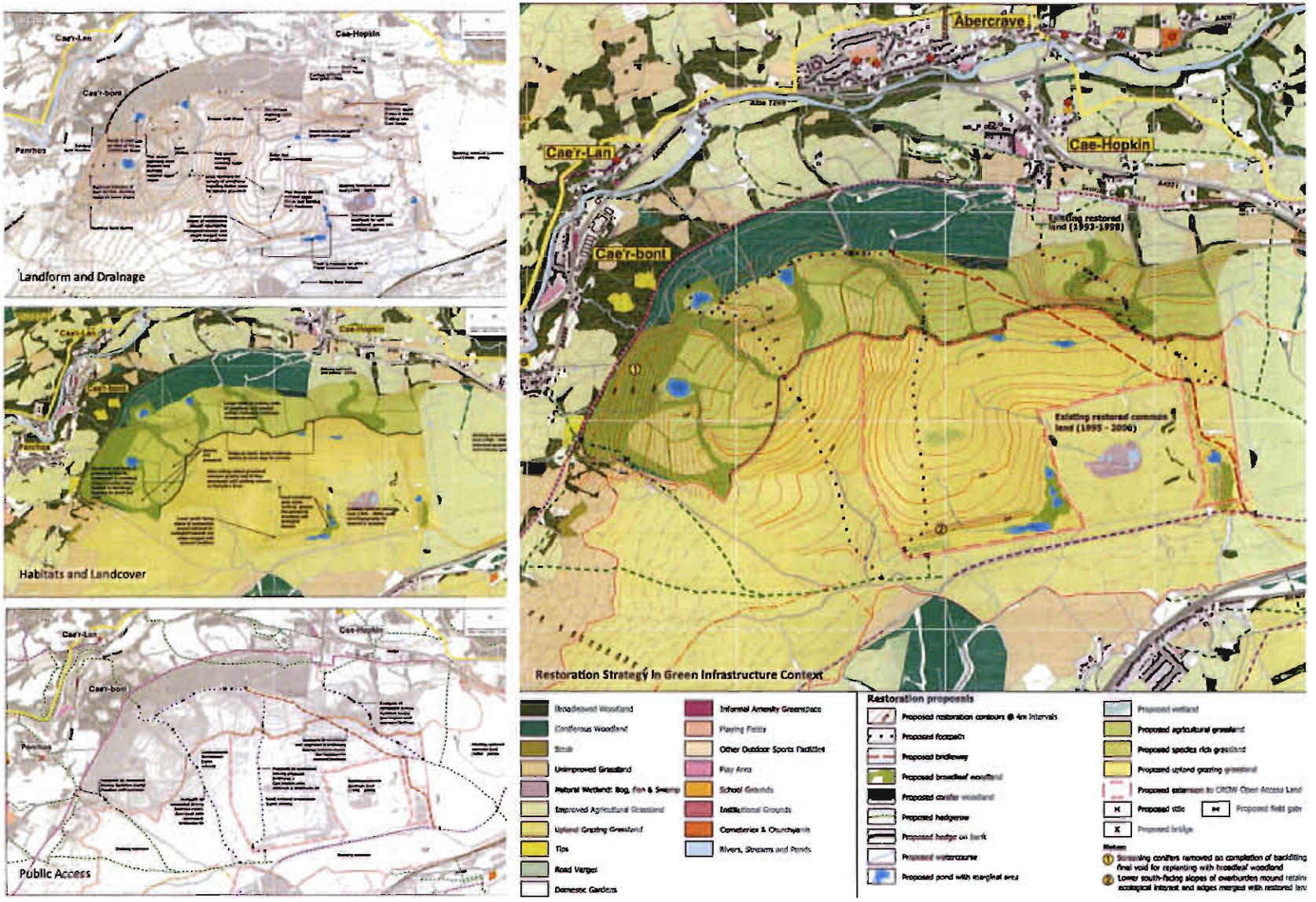


Figure 4.3 The restoration strategy for a coal surface mine: components and context

2. standard construction and operational management practices for avoiding and reducing environmental effects;
3. secondary measures, designed to address any residual adverse effects remaining after primary measures and standard construction practices have been incorporated into the scheme.

The primary mitigation measures and the consttuction and operational management practices should ideally be included in the project description/specification (and also in the design and access statement for the project). So too should the possible effects identified early on and the design responses that have been introduced, for example modifications to siting, access, layout, buildings, structures, ground modelling and planting. It can be expected that both these types of mitigation measure will definitely be implemented as they are to be an integral part of the scheme. They could therefore be secured by conditions on a consent (discussed in Paragraph 4.41). 4.22

Secondaty mitigation measures are those that are not built into the final development proposals and are considered in relation to the assessment of the landscape and visual effects of the scheme as the means of addtessing the significant adverse effects identified. As they are not incorporated in the scheme being assessed, there will need to be careful consideration of how they can be secured. In an ideal world, applying Landscape and Visual Impact Assessment as an iterative planning and design tool would allow all necessary and desitable mitigation to be incorporated into the project design, such that secondary mitigation should not prove necessary. This will not always be possible but that should not discourage the landscape professional from trying to achieve such an outcome. 4.23

The three forms of mitigation to address significant adverse effects form what has been termed the 'mitigation hierarchy' and good practice should aim to achieve mitigation at the highest possible level in this hierarchy. The ideal strategy is one of prevention/avoidance. If this is not possible, alternative strategies, first of reduction and then of offsetting/remedying (or compensating for) the effects, may need to be explored, depending on individual circumstances. Some of the main issues associated with these different strategies are outlined below. 4.24

Prevention/avoidance

Some likely significant adverse landscape and visual effects can be prevented ot avoided through careful planning, siting and design. In many cases time and costs may be reduced if significant environmental constraints can be identified and avoided during the early stages of scheme development. This may be achieved by the selection of a site that can more readily accommodate the proposed development or through innovative design within the selected site. This is closely related to the consideration of alternatives outlined in Paragraphs 4.11–4.13, and will often be dealt with as part of the design process and reported in the project desctiption. 4.25

Reduction

If potentially significant adverse effects cannot be prevented or avoided, the strategy should be to reduce those that remain as far as possible. In general the emphasis should 4.26

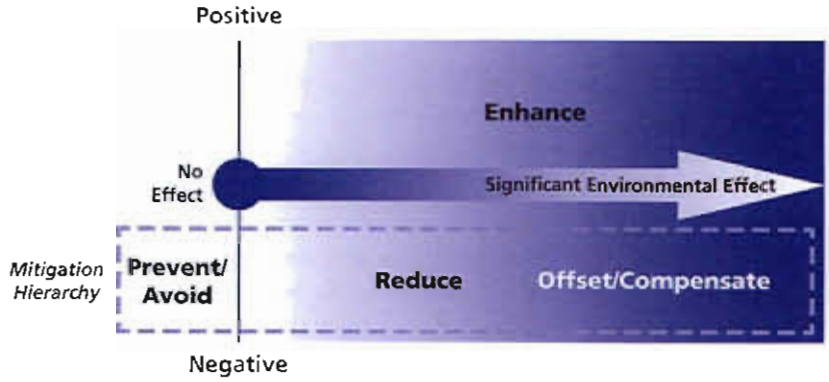


Figure 4.4 The mitigation hierarchy (from IEMA, 2011b)

be on modifying scheme design through successive iterations to reduce adverse effects. Sympathetic treatment of external areas can, in some circumstances, help the integration of a new development into the surrounding landscape, but measures that are simply added on to a scheme as 'cosmetic' landscape works, such as screen planting designed to reduce the negative effects of an otherwise fixed scheme design, are the least desirable. It should also be remembered that well-designed new development can make a positive contribution to the landscape and need not always be hidden or screened.

4.27 Mitigation measures that may help to reduce potentially negative landscape and visual effects include, but are not limited to:

- adjustment of site levels;
- use of appropriate form, detailed design, materials and finishes where it is neither desirable nor practicable to screen buildings and associated development – in these circumstances, the design of the structures and materials, colour treatments and textural finishes should be selected to aid integration with the surroundings;
- alterations to landforms (including creation of bunds or mounds) together with structure planting on and/or off site;
- avoiding or reducing obtrusive light – lighting for safety or security purposes may be unavoidable and may give rise to significant adverse visual effects; in such cases, consideration should be given to different ways of minimising light pollution and reference should be made to appropriate guidance, such as that provided by the Institution of Lighting Professionals (ILP, 2011).

4.28 All of the adverse landscape and visual effects that are considered likely to occur throughout the project life cycle (including its construction, operation, decommissioning and restoration/reinstatement stages) may be considered for mitigation where this is possible. However, the emphasis should be on those effects considered to be significant as this is the focus of the statutory requirements. Mitigating a significant adverse effect may reduce its severity or alter its nature while also possibly reducing its significance.

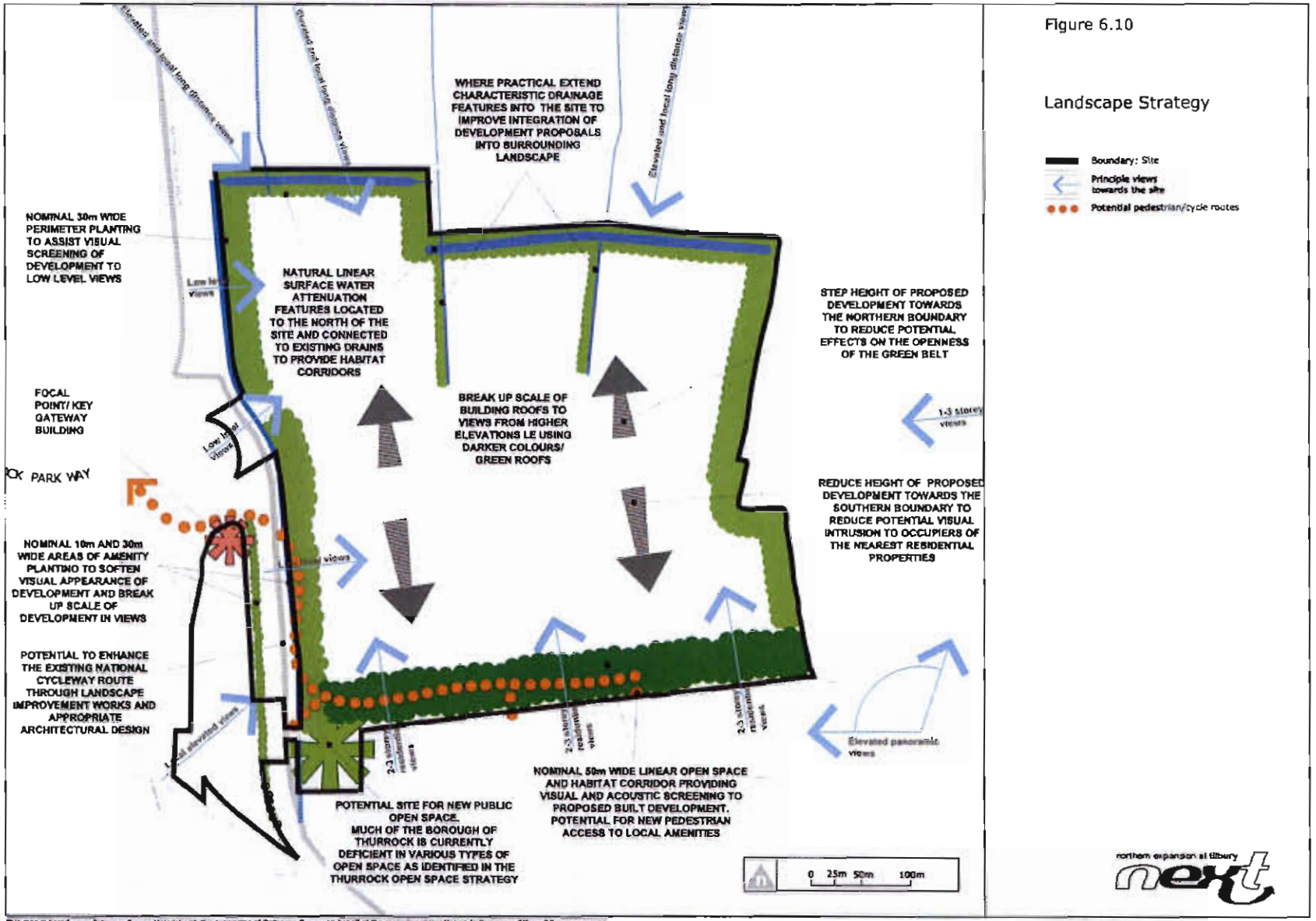


Figure 4.5 Landscape strategy plan incorporating proposed mitigation measures

4.29 Mitigation measures can sometimes themselves have adverse effects on landscape or on visual amenity, as well as on other matters such as cultural heritage or ecology, and their planning and design needs careful consideration. They should be designed to fit with the existing character of the landscape where this is a desirable landscape objective, respecting and building upon local landscape distinctiveness, for example in use of materials that are locally derived. They should also respond, where possible, to landscape objectives that may have been set in development or management plans or strategies for the area.

4.30 In addition, mitigation measures for effects in other topic areas may have additional consequences for the landscape and for views and visual amenity. The iterative design process should allow these to be assimilated and their additional effects taken into account in the overall mitigation strategy. For example, culverts and other features required to maintain safe passage for wildlife could themselves be visually intrusive. Design measures can ensure both their effectiveness in mitigating adverse ecological effects and their appropriateness in terms of fit with landscape character, where appropriate. Similarly, landscape or visual mitigation may require planting where the design considerations would also include the ecological acceptability of the species used. The EIA co-ordinator may have a role in ensuring that such reciprocal effects of mitigation measures on other topic areas are taken into account.

4.31 Mitigation measures, especially planting schemes, are not always immediately effective. Advance planting can help to reduce the time between the development commencing and the planting becoming established. If such planting forms part of the scheme design it should be included in the design and access statement and in the project description. Where planting is intended to provide a visual screen for the development it may be appropriate to assess the effects for different seasons and periods of time (for example, at year 0, representing the start of the operational stage, year 5 and year 15) in order to demonstrate the contribution to reducing the adverse effects of the scheme at different stages. In such projections the assumptions made about growth rates of planting should be clearly stated.

Offset, remedy or compensate

4.32 Where a significant adverse landscape or visual effect cannot be avoided or markedly reduced, consideration should be given to any opportunities to offset, remedy or compensate for such unavoidable effects. Here the aim should be, as far as possible, to replace like with like or, where this is not possible, to provide features of equivalent value. To achieve this, a reliable assessment is needed of the nature, extent and value of the resource that would be lost or damaged (drawing upon baseline information supplemented with additional material where necessary).

4.33 It is debatable whether full offsetting of adverse effects is possible. For example, a new area of woodland may eventually offset the loss of an existing highly valued mature woodland in visual and landscape character terms, but it is unlikely that it would compensate for the loss of established habitat or amenity value in the period between its establishment and its full development. Similarly loss of an area of ancient woodland cannot, by definition, be compensated for other than in timescales extending over generations. Therefore, offsetting and compensation should generally be regarded as measures of last resort.

4.34 It is increasingly common for offsetting measures to be offered that are not closely related to the lost or damaged features. Such measures may sometimes be actively sought by local communities or local authorities to offset unavoidable negative effects. They might include, for example, the provision of new local amenity areas, parks or green spaces, or the creation or provision of a work of art. Such measures should normally be linked to the development in some way. The terms 'offset' and 'compensation' should not be confused with 'enhancement' (which is discussed in the next section).

Enhancement

4.35 While mitigation is linked to significant adverse landscape and visual effects, enhancement is not a requirement of the EIA Regulations. It means proposals that seek to improve the landscape resource and the visual amenity of the proposed development site and its wider setting, over and above its baseline condition. Enhancement may take many forms, including improved land management or restoration of historic landscapes, habitats and other valued features; enrichment of impoverished agricultural landscapes; measures to conserve and improve the attractiveness of town centres; and creation of new landscape, habitat and recreational areas. Through such measures environmental enhancement can make a very real contribution to sustainable development and the overall quality of the environment.

4.36 Ideally, enhancement proposals should not be an 'afterthought' in project development but should be an integral part of the design of a development proposal, seeking to identify from an early stage opportunities to enhance the baseline conditions and integrate these proposals into the overall development project. If they can be brought sensibly into the project planning and design stage and then form part of the overall proposal, they may legitimately be assessed as part of the proposal. Depending on circumstances, they may in turn give rise to further positive effects that should be identified and assessed.

4.37 Enhancement proposals should be based on a sound baseline assessment of the landscape and visual amenity of the area and of any trends likely to bring about future change. The following questions could usefully be considered, but local circumstances may vary and different questions may also be relevant:

- Can the development help improve the visual amenity of the area?
- Can it help to restore, reconstruct or provide new local landscape character and local distinctiveness?
- Can it assist in meeting landscape management objectives for the area?
- Can it help address specific issues and/or opportunities, for example restoration of damaged or derelict land, opportunities for habitat improvement and the scope for cultural heritage benefit?

Securing implementation of mitigation and enhancement measures

4.38 It is essential to demonstrate that any measures included as part of the mitigation proposed to respond to adverse landscape and visual effects can be delivered in practice. This may be considered a part of the assessment of effects and taken into account by decision makers. Similar considerations apply to enhancement measures proposed for inclusion in the scheme, where a firm commitment to and method of delivery must be included.

4.39 If mitigation or enhancement measures are material factors likely to influence the outcome of a project proposal then a judgement needs to be made about whether they are technically achievable, practically deliverable and likely to be sustainable in the future. This should begin with technical considerations – for example, whether like-for-like replacement habitat creation measures can be realised successfully. Expert scientific, technical and design advice may be required to make sure that such proposals are well founded and where possible based on successful precedents. However, it is important that such proposals do not give rise to a further round of impacts and effects with respect to other topics in the assessment, for example cultural heritage. It would be counterproductive if 'successful' replacement or compensation in one quarter gave rise to significant adverse effects in another.

4.40 Ways in which the mitigation measures, and any agreed enhancement proposals, will be delivered in practice are now commonly dealt with through an Environmental Management Plan (EMP). An EMP is defined as 'a practical tool for managing the effects of a specific project in the post-consent phase, typically in the run up to, and during, the construction phase of a project, and potentially into the operational phase' (IEMA/Land Use Consultants, 2008: 1). Such plans, which may also appear under other names, can be started during the design stages of a project, but at the latest should be available after consent has been given but before the start of construction. In wider EIA practice it is increasingly argued that EMPs should form part of the Environmental Statement. They should ideally make clear how mitigation and enhancement is to be achieved and may extend to identifying who is responsible and the timing of implementation. This might include any measures to mitigate adverse landscape and visual effects that may be proposed on land outside the site, provided it can be demonstrated that there is a reasonable chance of securing their delivery – for example off-site planting proposals secured by legal agreement.

4.41 On-site mitigation measures designed to reduce adverse landscape and visual effects can often be secured through conditions attached to a consent, provided that the mitigation is described in a way that allows this. They should, for example, be clear and specific, and compliance with the condition must be possible.[2] The competent authority should make sure that all the promised mitigation measures are, where appropriate, covered by conditions or, if this is not the case, by suitable legal agreement. Relevant conditions should be able to be monitored, and it should be made clear who is to implement and monitor the measures that are put forward. Enhancement measures not included in the development proposal can also be secured through conditions but may be better incorporated into planning obligations that are agreed as part of the consent procedures.

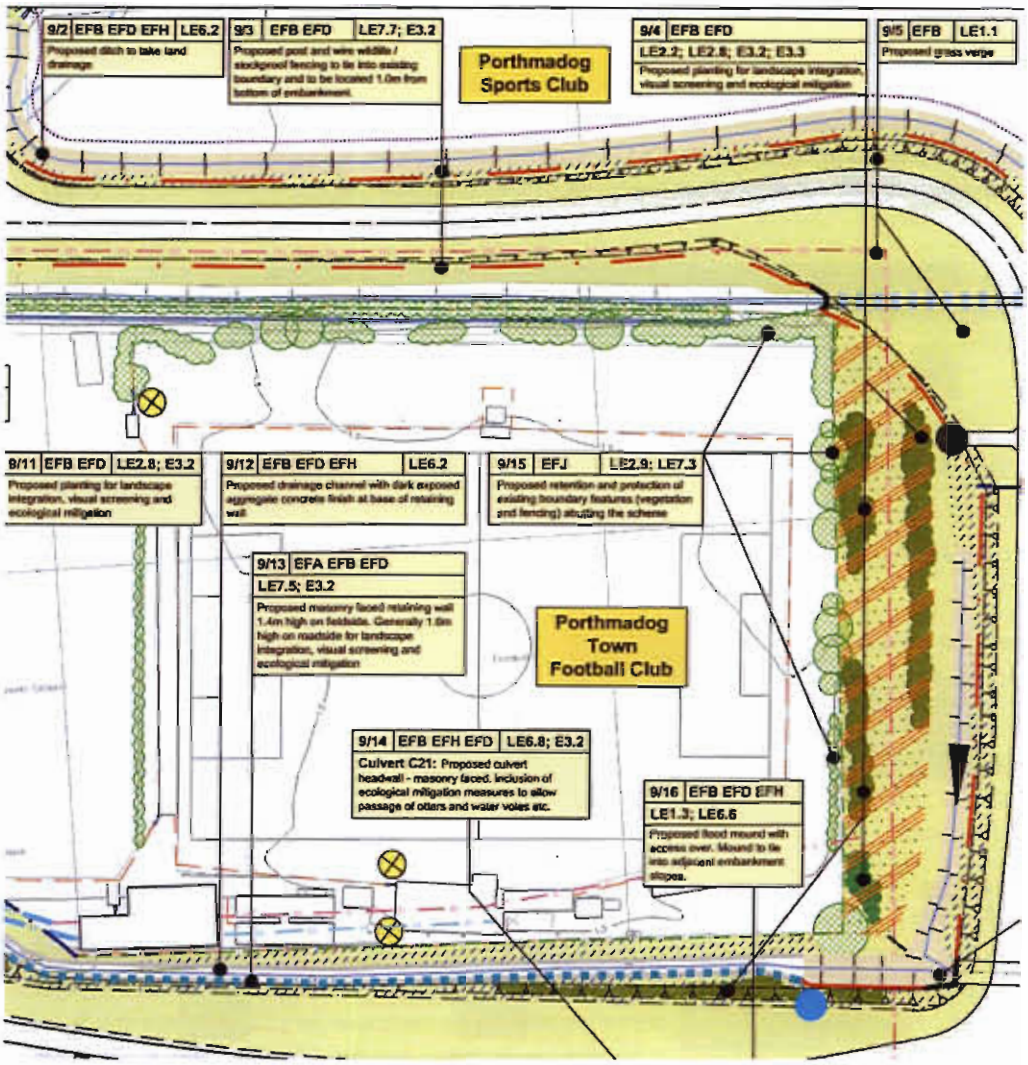


Figure 4.6 Extract from an example of an Environmental Master Plan gathering together all the environmental commitments including landscape and other mitigation measures, and forming part of an Environmental Management Plan

Mitigation measures should be linked to suitable specifications and performance standards, covering for example the establishment, management, maintenance and monitoring of new landscape features. They should describe what is required for mitigation to be effective, in sufficient detail to allow conditions to be drafted and/or for detailed schemes to be submitted for approval before implementation. Assumptions about plant growth or other changes over time should be realistic and not over optimistic. The design concept for the mitigation has to have a good chance of being achieved in practice to be taken seriously by the competent authority. This requires not only a good understanding of the design of the mitigation but also the conditions and pressures in which that mitigation will have to survive. 4.42

4.43 Some form of contingency planning may be desirable, in the event that mitigation measures should prove to be unsuccessful. It can be helpful to seek technical advice to review the wording describing mitigation and enhancement measures, as failures in language and understanding can hinder their effective implementation. In short, mitigation of landscape and visual effects is most likely to be successful if it is appropriate, feasible and effectively communicated.

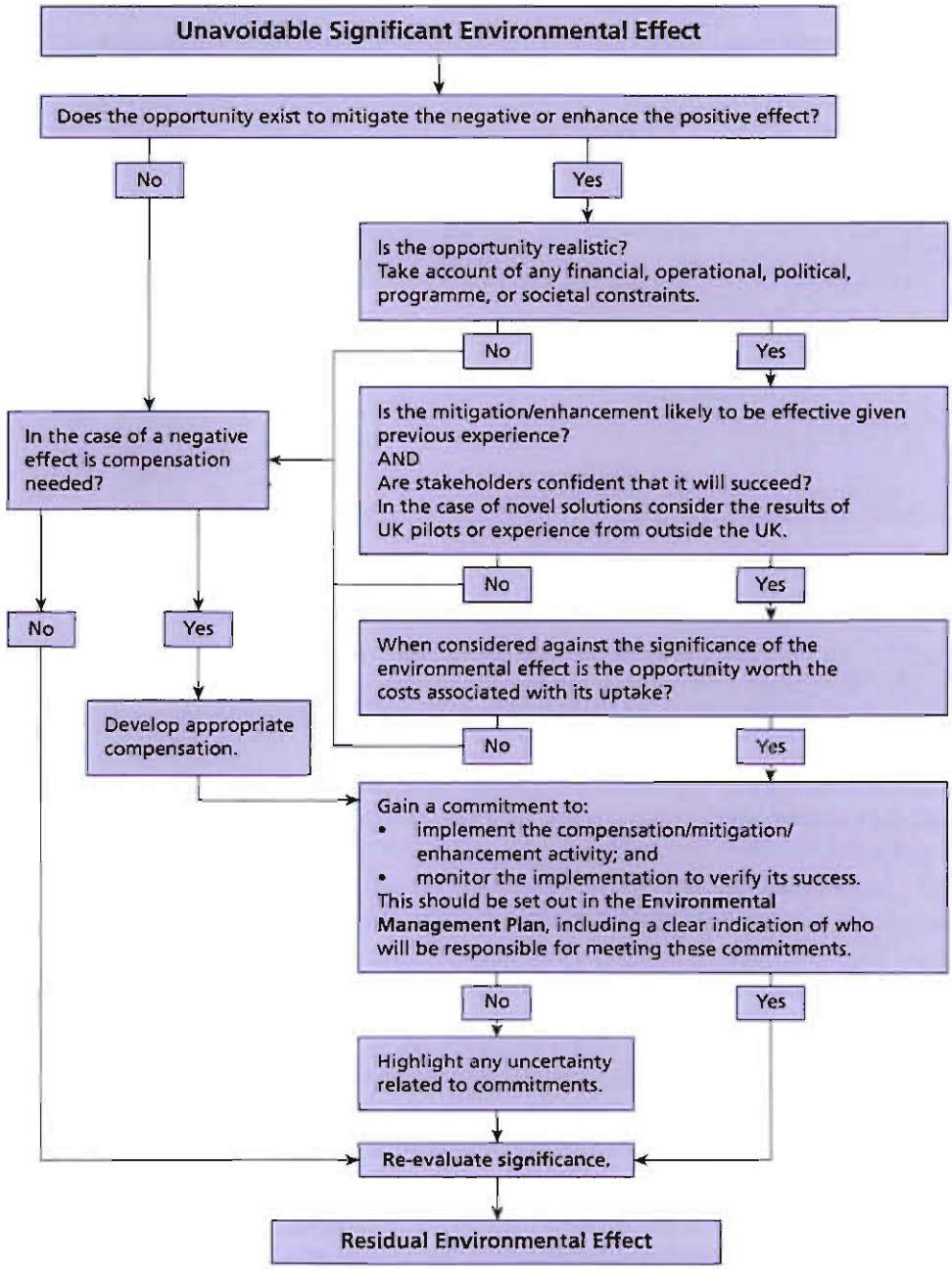


Figure 4.7 Mitigation/enhancement decision tree (from IEMA/Land Use Consultants, 2008)

Summary advice on good practice

- Information about the development that is of relevance to the assessment of landscape and visual effects needs to be assembled, kept under review during the planning and design stages, updated where appropriate and then 'fixed' to enable the assessment to be finalised.
- The assessment of likely effects must be based on a description of the development that is sufficiently detailed to ensure that the effects can be clearly identified. Where only outline information about the scheme is available, parameters within which the development may evolve must be established.
- Where the landscape professional considers that key data on project characteristics is lacking, it will be necessary to add a caveat to the assessment to make this clear, or to state the assumptions made or the parameters adopted.
- EIA can be an important design tool and is usually an iterative process, the stages of which feed into the planning and design of the project.
- Landscape professionals should be involved as early as possible in this iterative process to ensure that the likely landscape and visual effects play an important part in the evolution of a development proposal.
- An outline description of the main alternatives considered should be provided together with an indication of the main reasons for the final development choice, including why some alternative options have been rejected on the basis of landscape and visual considerations.
- The project description/specification should provide a clear and concise but also comprehensive description of the development proposal. It is usually a separate section of the Environmental Statement and only particularly relevant features and aspects of the project need to be reported on separately in the part of the Statement dealing with the assessment of landscape and visual effects.
- Construction, operation, decommissioning and restoration/reinstatement phases of a development can have quite different physical characteristics, so a separate, self-contained description of the development at each stage in the life cycle may be needed to assist in the prediction of landscape and visual effects.
- In accordance with the EIA Regulations, measures proposed to prevent/avoid, reduce and, where possible, offset or remedy (or compensate for) any significant adverse landscape and visual effects should be described.
- In practice mitigation measures are now generally considered to fall into the categories of: primary measures, developed through the iterative design process and integrated or embedded into the project design; standard construction and operational management practices; and secondary measures specifically intended to address significant residual adverse effects but not built into the final development proposals.
- Prevention/avoidance, reduction, and offset, remedy or compensation together form what has been termed the 'mitigation hierarchy'. Good practice should aim to achieve mitigation at the highest possible level in the hierarchy, so the ideal strategy is one

of prevention or avoidance. If this is not possible, alternative strategies, first of reduction and then of offset, remedy or compensation, may need to be explored.

Mitigation measures, from the LVIA or other topic assessments in the EIA, can themselves have adverse effects on the landscape or on visual amenity, or on other matters such as cultural heritage or ecology. Their planning and design needs careful consideration, taking into account their potential effects.

Where the strategy is to offset, remedy or compensate for such unavoidable effects the aim should be, as far as possible, to replace like with like or, where this is not possible, to provide features of equivalent value.

While mitigation is linked to significant adverse landscape and visual effects, enhancement is not a requirement of the EIA Regulations. Enhancement means proposals that seek to improve the landscape resource and the visual amenity of the proposed development site and its wider setting in comparison with the existing baseline conditions. Ideally enhancement should be an integral part of the design of the development proposal and not an 'afterthought'.

It is essential to demonstrate that any measures included as part of the mitigation of adverse landscape and visual effects, and any proposed enhancement measures, can actually be delivered in practice. The best way to achieve this is through the inclusion of a draft Environmental Management Plan in the Environmental Statement.

Chapter 5

Assessment of landscape effects

Chapter overview

- Scope
- Establishing the landscape baseline
- Predicting and describing landscape effects
- Assessing the significance of landscape effects
- Judging the overall significance of landscape effects

Scope

5.1 An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern here is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. Scoping should try to identify the full range of possible effects. But discussion with the consenting authority and stakeholders during the scoping process may conclude that some effects are unlikely to be significant and therefore do not need to be considered further. All other possible effects must be considered in detail in the assessment process.

5.2 Scoping should also identify the area of landscape that needs to be covered in assessing landscape effects. This should be agreed with the competent authority, but it should also be recognised that it may change as the work progresses, for example as a result of fieldwork, or changes to the proposal. The study area should include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner. This will usually be based on the extent of Landscape Character Areas likely to be significantly affected either directly or indirectly. However, it may also be based on the extent of the area from which the development is potentially visible, defined as the Zone of Theoretical Visibility, or a combination of the two.

See Chapter 6 for discussion of Zones of Theoretical Visibility.

Establishing the landscape baseline

5.3 Baseline studies for assessing landscape effects require a mix of desk study and field-work to identify and record the character of the landscape and the elements, features and aesthetic and perceptual factors which contribute to it. They should also deal with the value attached to the landscape (see Paragraph 5.19). The methods used should be appropriate to the context into which the development proposal will be introduced and in line with current guidance and terminology.

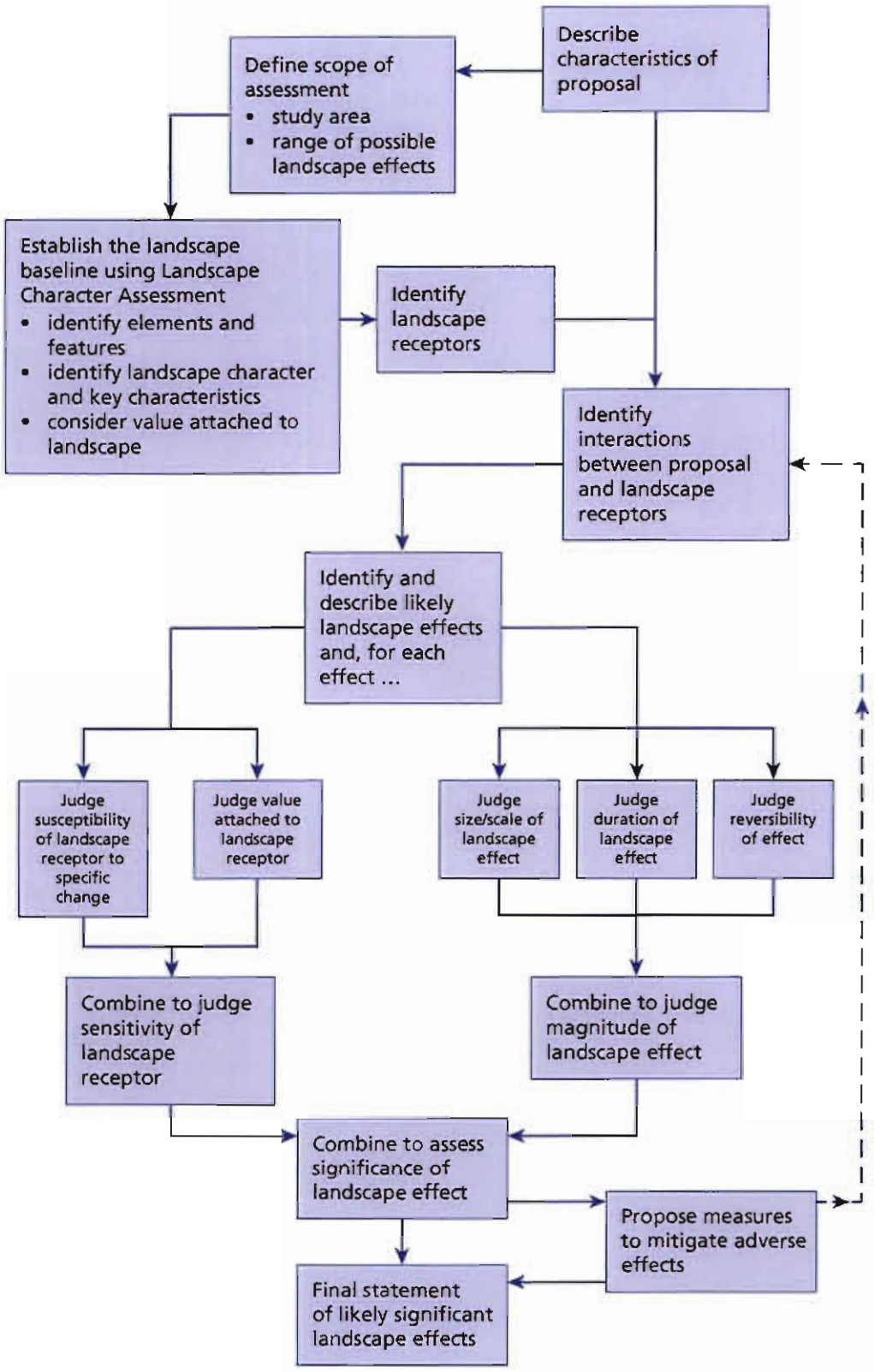


Figure 5.1 Steps in assessing landscape effects

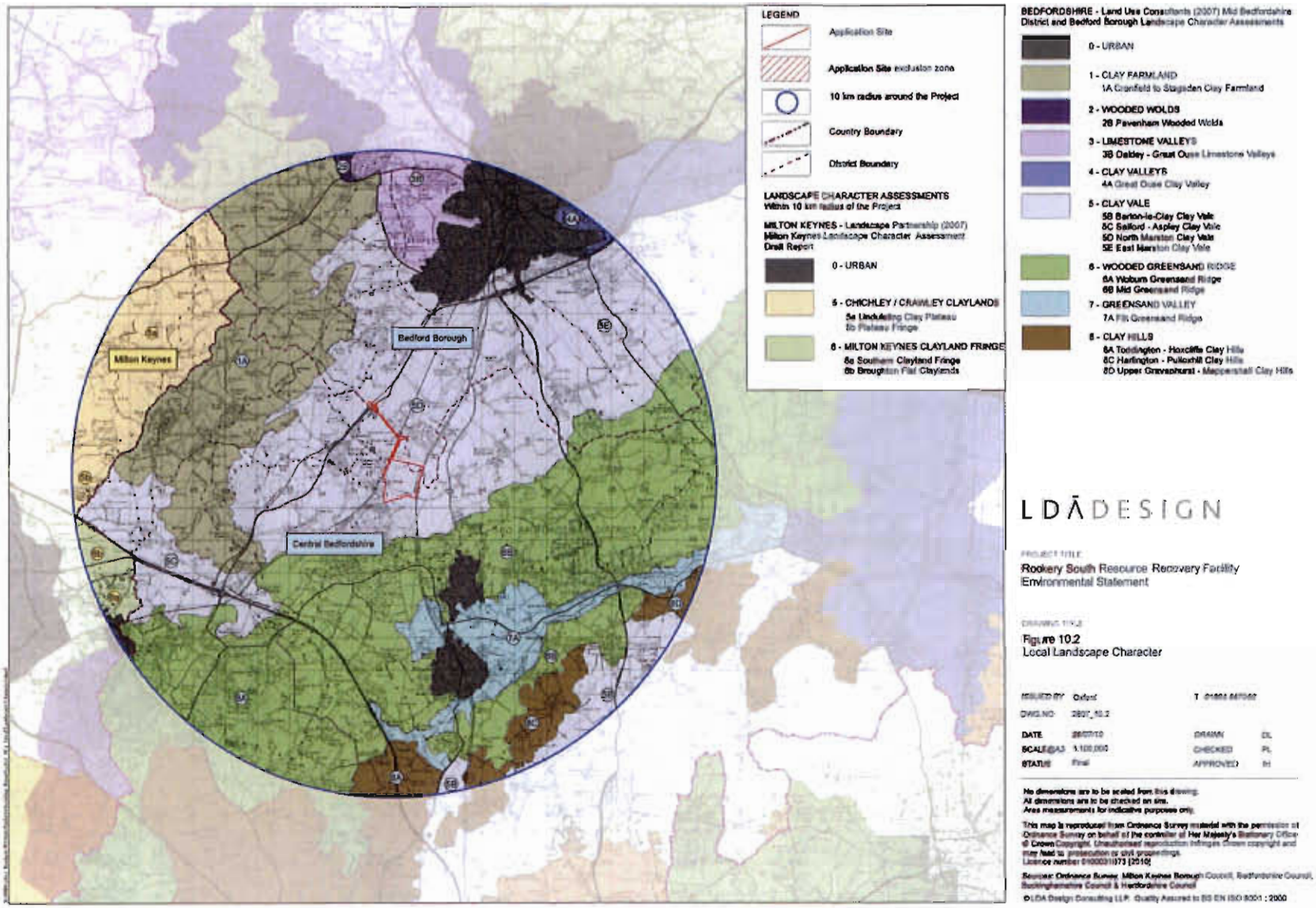


Figure 5.2A Use of landscape character information as a baseline for assessing the landscape effects of a Resource Recovery Facility

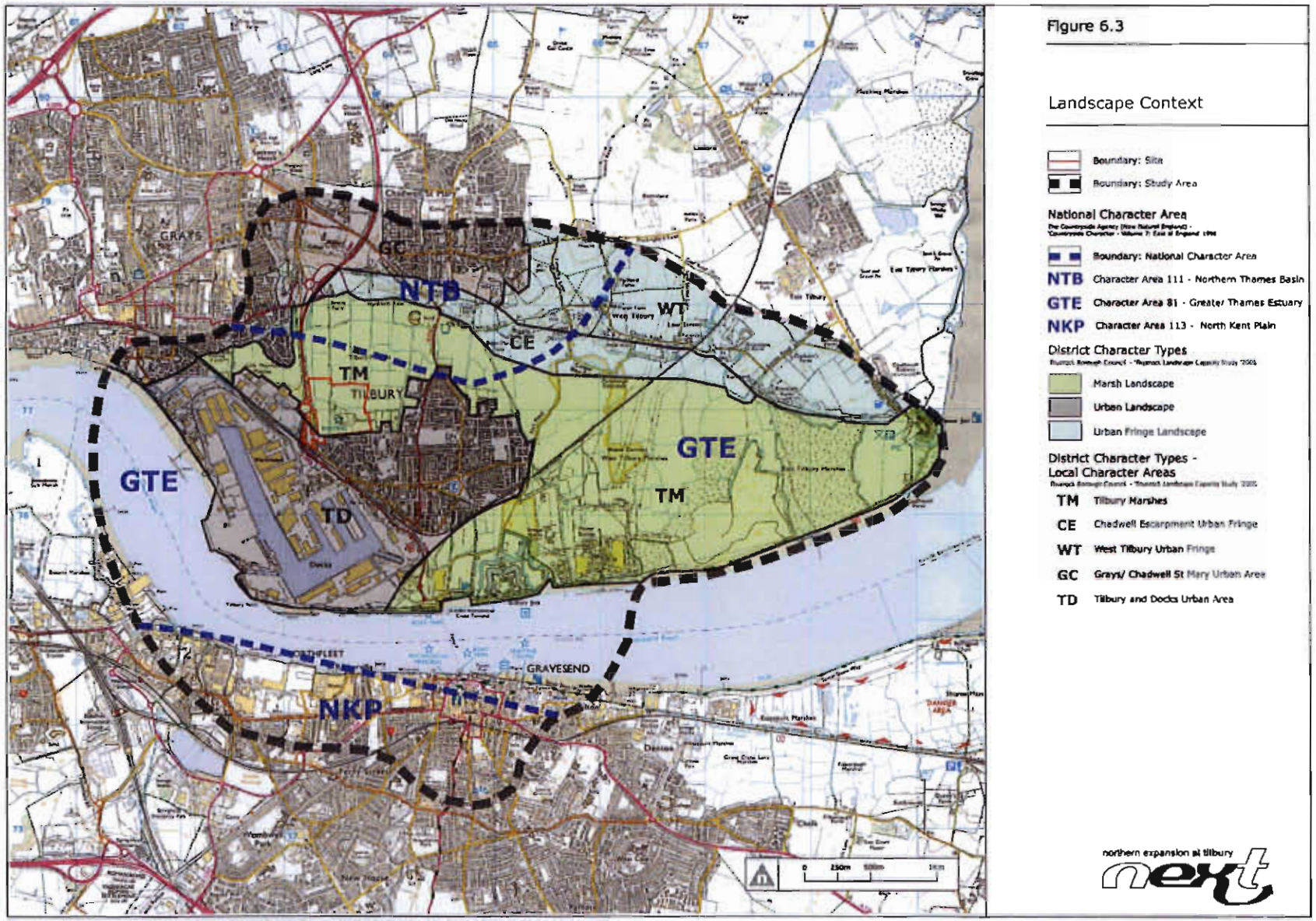


Figure 5.2B Baseline information on landscape character at both national and local scales in an LVIA study area

Landscape Character Assessment

5.4 In rural landscapes, as defined in Chapter 2, Landscape Character Assessment (LCA) is the key tool for understanding the landscape and should be used for baseline studies. There is a well-established and widely used method for LCA, which is set out in current guidance documents.[1] This should be used to identify and describe:

- the elements that make up the landscape in the study area, including:
  - physical influences – geology, soils, landform, drainage and water bodies;
  - land cover, including different types of vegetation and patterns and types of tree cover;
  - the influence of human activity, including land use and management, the character of settlements and buildings, and pattern and type of fields and enclosure;
- the aesthetic and perceptual aspects of the landscape – such as, for example, its scale, complexity, openness, tranquillity or wildness;
- the overall character of the landscape in the study area, including any distinctive Landscape Character Types or areas that can be identified, and the particular combinations of elements and aesthetic and perceptual aspects that make each distinctive, usually by identification as key characteristics of the landscape.

Townscape character assessment

5.5 LVIA in urban contexts requires a good understanding of townscape (as defined in Chapter 2, Paragraph 2.7) and there are now accepted techniques of townscape character assessment which can help to achieve this. Landscape professionals involved in LVIA should participate in such assessments, although joint working with architects, planners or urban designers will be required in some cases. The nature of townscape requires particular understanding of a range of different factors that together distinguish different parts of towns and cities, including:

- the context or setting of the urban area and its relationship to the wider landscape;
- the topography and its relationship to urban form;
- the grain of the built form and its relationship to historic patterns, for example of burgage plots;
- the layout and scale of the buildings, density of development and building types, including architectural qualities, period and materials;
- the patterns of land use, both past and present;
- the contribution to the landscape of water bodies, water courses and other water features;
- the nature and location of vegetation, including the different types of green space and tree cover and their relationships to buildings and streets;
- the types of open space and the character and qualities of the public realm;
- access and connectivity, including streets and footways/pavements.

Figure 5.3 Townscape character assessment as part of the baseline for LVIA of an urban development

Seascape character assessment

5.6 Where LVIA is carried out in coastal or marine locations baseline studies must take account of seascape, as defined in Chapter 2 (Paragraphs 2.8 and 2.9). Methods to assess the character of seascapes, similar to the assessment methods for terrestrial landscapes, are being developed and practitioners should refer to the latest available guidance. It is important to take account of the particular characteristics and qualities of the marine and coastal environment, including those associated with the natural environment, cultural and social characteristics, and perceptual and aesthetic qualities. These will include:

- coastal features;
- views to and from the sea;
- particular qualities of the open sea;
- the importance of dynamic changes due to weather and tides;
- change in seascapes due to coastal processes;
- cultural associations;
- contributions of coastal features to orientation and navigation at sea.

Links to cultural heritage and historic landscape character

5.7 The relationship between landscape and historic landscape matters is close. The first is concerned with the landscape as it is today. The second is concerned with how the landscape came to be as it is, dealing with historic dimensions such as 'time depth' and historical layering – the idea of landscape as a 'palimpsest', a much written-over manuscript.

5.8 Historic landscape characterisation is complementary to Landscape Character Assessment. It looks at the material remains of the past and perceptions and interpretations of them, in order to help us understand the present-day landscape. In towns and cities this characterisation and other historic environment studies can help to provide good understanding of the historic time depth of townscapes and flesh out descriptions of townscape character with fuller explanation of the layers of history that underpin it. Since the second edition of this guidance there have been significant advances in the assessment of historic landscape character, and in seascape and townscape characterisation, along with publication of related guidance and maps.

5.9 The history of the landscape, its historic character, the interaction between people and places through time, and the surviving features and their settings may be relevant to the LVIA baseline studies, as well as the cultural heritage topic. The evaluation needs to consider both the historic landscape characterisation and the Landscape Character Assessment. The LVIA also needs to address the fact that many historic features – archaeological remains, buildings and designed landscapes – are important in their own right as well as features of the landscape.

5.10 Landscape professionals should make good use of existing historic landscape information, and collaborate with historic environment specialists, who will be collating or recording such information for the cultural heritage part of the EIA. This collaboration will allow the landscape baseline information to reflect a full understanding of the historic characteristics and features of today's landscape.

Figure 5.4 Historic buildings often contribute to the character and quality of townscapes

The sharing of relevant baseline information should not be confused with the need for separate cultural heritage appraisals such as historic landscape characterisation and assessment or historic townscape appraisal, or there will be a danger of both double handling and inappropriate judgements by non-experts. It is particularly important that responsibilities are clear in considering any effects on the settings and views for historic buildings, Conservation Areas and other heritage assets. 5.11

Using existing character assessments

Many parts of the UK are already covered by existing character assessments at different scales. There is a hierarchy of assessment, from broad-scale national or regional assessments, through to more detailed local authority assessments, to in some cases quite fine-grain local or community assessments. Although usually prepared for different original purposes, existing assessments can also contribute to LVIA. The first step in preparing the landscape baseline should be to review any relevant assessments that may be available at different levels in this hierarchy. Those published and adopted by competent authorities are usually the most robust and considered documents. Use should also be made of any existing historic characterisation studies to provide information on the time depth dimension of the landscape. 5.12

Existing assessments must be reviewed critically as their quality may vary, some may be dated and some may not be suited to the task in hand. Before deciding to rely on information from an existing assessment a judgement should be made as to the degree to which it will be useful in informing the LVIA process. 5.13

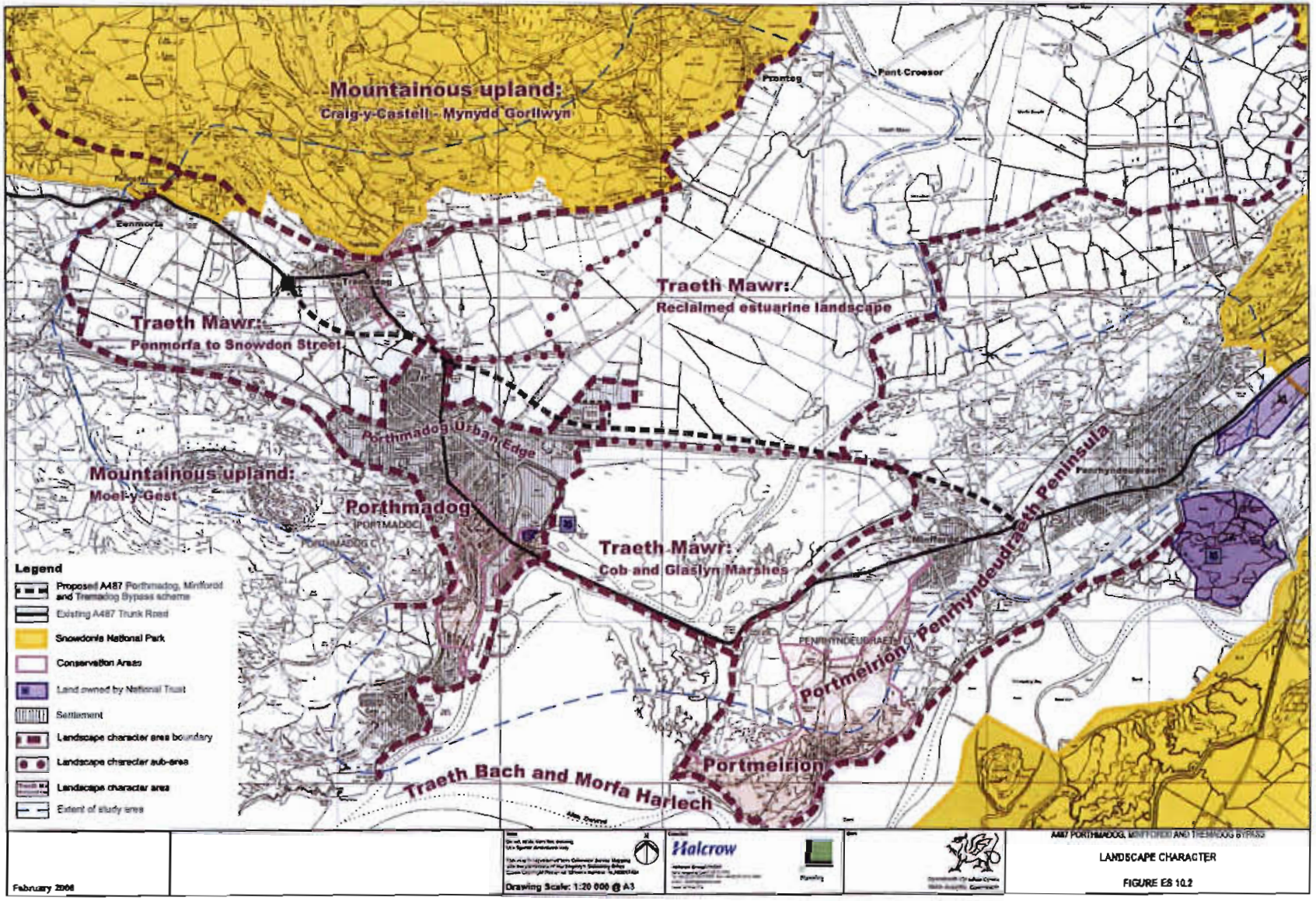


Figure 5.5 Where Landscape Character Assessments are not available, as in some parts of Wales, project-specific character areas can be derived, for example in Wales from an analysis of LANDMAP and other information, and structured site surveys

It should be reviewed in terms of:

- when it was carried out and the extent to which the landscape may have changed since then;
- its status, and whether or not it has been formally adopted, for example, as supplementary planning guidance;
- the scale and level of detail of the assessment and therefore its suitability for use in the LVIA, while noting that larger-scale assessments can often provide valuable context;
- any other matters which might limit the reliability or usefulness of the information.

Justification should be provided for any departure from the findings of an existing, established LCA.

5.14 It is essential to decide at the outset what scale of character assessment information is needed to provide a basis for the LVIA and then to judge the value of existing assessments against this. Broad-scale assessments at national or regional level can be helpful in setting the landscape context, but are unlikely to be helpful on their own as the basis for LVIA – they may be too generalised to be appropriate for the particular purpose. Local authority assessments will provide more useful information about the landscape types that occur in the study area. Ideally both should be used together in the following ways:

- Broad-scale assessments set the scene and reference can be made to the descriptions of relevant character types or areas to indicate the key characteristics that may be apparent in the study area.
- Local authority assessments provide more detail on the types of landscape that occur in the study area. They can be mapped to show how the proposals relate to them and the descriptions and definition of key characteristics can be used to inform the description of the landscapes that may be affected by the proposal.

5.15 Existing assessments may need to be reviewed and interpreted to adapt them for use in LVIA – for example by drawing out more clearly the key characteristics that are most relevant to the proposal. Fieldwork will also be required to check the applicability of the assessment throughout the study area and to refine it where necessary, for example by identifying variations in character at a more detailed scale. Completely new supplementary Landscape Character Assessment work covering the whole study area will only be required when there are no existing assessments or when they are available but either have serious limitations that restrict their value or do not provide information at an appropriate level of detail.

5.16 Even where there are useful and relevant existing Landscape Character Assessments and historic landscape characterisations, it is still likely that it will be necessary to carry out specific and more detailed surveys of the site itself and perhaps its immediate setting or surroundings. This provides the opportunity to record the specific characteristics of this more limited area, but also to analyse to what extent the site and its immediate surroundings conform to or are different from the wider Landscape Character Assessments that exist, and to pick up other characteristics that may be important in considering the effects of the proposal.

5.17 Where new landscape surveys are required, either of the whole study area or of the site and its immediate surroundings, they should follow recommended methods and up-to-date guidance. Survey information may be recorded in a variety of ways but good records are essential. This is especially so in LVIA as the landscape baseline may eventually be used in a public inquiry where other parties could request access to field records.

5.18 Evidence about change in the landscape, including in its condition, is an important part of the baseline. The condition of the different landscape types and/or areas and their constituent parts should be recorded, and any evidence of current pressures causing change in the landscape documented, drawing on previous reports and data sources as well as field records.

Establishing the value of the landscape

5.19 As part of the baseline description the value of the potentially affected landscape should be established. This means the relative value that is attached to different landscapes by society, bearing in mind that a landscape may be valued by different stakeholders for a whole variety of reasons. Considering value at the baseline stage will inform later judgements about the significance of effects. Value can apply to areas of landscape as a whole, or to the individual elements, features and aesthetic or perceptual dimensions which contribute to the character of the landscape. LANDMAP in Wales, for example, evaluates each area for each of its five aspects or layers. Landscapes or their component parts may be valued at the community, local, national or international levels. A review of existing landscape designations is usually the starting point in understanding landscape value, but the value attached to undesignated landscapes also needs to be carefully considered and individual elements of the landscape – such as trees, buildings or hedgerows – may also have value. All need to be considered where relevant.

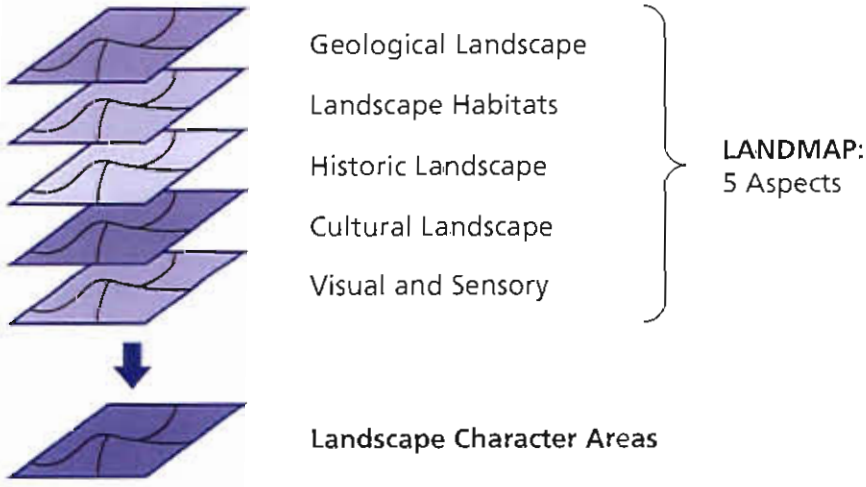


Figure 5.6 In Wales, landscape information is found in LANDMAP, providing data on five aspects of the landscape which can be combined (with other information) to define Landscape Character Areas

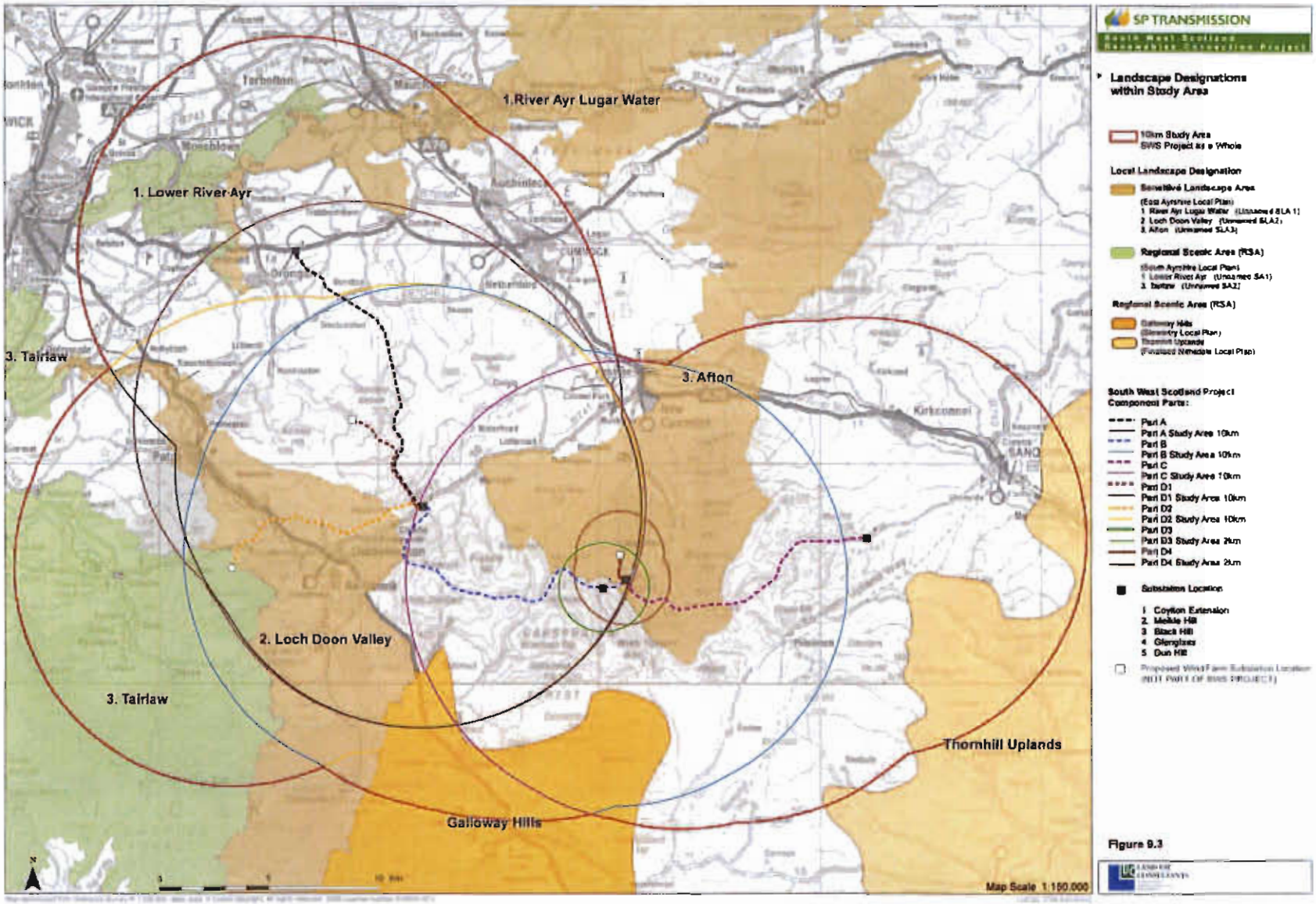


Figure 5.7 A review of existing landscape designations is usually the starting point in understanding landscape value

5.20 Information that will contribute to understanding value might include:

- information about areas recognised by statute such as (depending on jurisdiction) National Parks, National Scenic Areas, Areas of Outstanding Natural Beauty;
- information about Heritage Coasts, where relevant;
- local planning documents which may show the extent of and policies for local landscape designations;
- information on the status of individual or groups of features such as, for example, Conservation Areas, listed buildings, Tree Preservation Orders, important hedgerows, cultural heritage elements such as historic landscapes of various forms, archaeological sites of importance and other special historical or cultural heritage sites such as battlefields or historic gardens;
- art and literature, including tourism literature and promotional material such as postcards, which may indicate the value attached to the identity of particular areas (for example 'Constable Country' or specially promoted views);
- material on landscapes of local or community interest, such as local green spaces, village greens or allotments.

International and national designations

5.21 Internationally acclaimed landscapes may be recognised, for example as World Heritage Sites, and particular planning policies may apply to them. Nationally valued landscapes are recognised by designation, which have a formal statutory basis that varies in different parts of the UK. They include:

- National Parks in England, Wales and Scotland;
- Areas of Outstanding Natural Beauty in England, Wales and Northern Ireland[2];
- National Scenic Areas in Scotland.

Figure 5.8 A listed building within a historic designed landscape

Across the UK there is also a variety of designations aimed at aspects of the historic environment (such as Conservation Areas and listed buildings) and non-statutory recognition of particular types of environment (such as Heritage Coasts). An LVIA should consider the implications of the full range of statutory and non-statutory designations and recognitions and consider what they may imply about landscape value. 5.22

The criteria and terms used in making statutory designations vary and may not always be explicitly stated. If a project subject to LVIA is in or near to one of them, it is important that the baseline study should seek to understand the basis for the designation and why the landscape is considered to be of value. Great care should be taken to understand what landscape designations mean in today's context. This means determining to what degree the criteria and factors used to support the case for designation are represented in the specific study area. 5.23

Desk study of relevant documents will often, although not always, provide information concerning the basis for designation. But sometimes, at the more local scale of an LVIA study area, it is possible that the landscape value of that specific area may be different from that suggested by the formal designation. Fieldwork should help to establish how the criteria for designation are expressed, or not, in the particular area in question. At the same time it should be recognised that every part of a designated area contributes to the whole in some way and care must be taken if considering areas in isolation. 5.24

Local landscape designations

In many parts of the UK local authorities identify locally valued landscapes and recognise them through local designations of various types (such as Special Landscape Areas or Areas of Great Landscape Value). They are then incorporated into planning documents along with accompanying planning policies that apply in those areas. As with national designations, the criteria that are used to identify them vary, and similar considerations apply. It is necessary to understand the reasons for the designation and to examine how the criteria relate to the particular area in question. Unfortunately many of these locally designated landscapes do not have good records of how they were selected, what criteria were used and how boundaries were drawn. This can make it difficult to get a clear picture of the relationship between the study area and the wider context of the designation. 5.25

Undesignated landscapes

The fact that an area of landscape is not designated either nationally or locally does not mean that it does not have any value. This is particularly so in areas of the UK where in recent years relevant national planning policy and advice has on the whole discouraged local designations unless it can be shown that other approaches would be inadequate. The European Landscape Convention promotes the need to take account of all landscapes, with less emphasis on the special and more recognition that ordinary landscapes also have their value, supported by the landscape character approach. 5.26

Where local designations are not in use a fresh approach may be needed. As a starting point reference to existing Landscape Character Assessments and associated planning policies and/or landscape strategies and guidelines may give an indication of which landscape types or areas, or individual elements or aesthetic or perceptual aspects of the landscape are particularly valued. A stated strategy of landscape conservation is usually a good indicator of this. 5.27

5.28 In cases where there is no existing evidence to indicate landscape value, and where scoping discussions suggest that it is appropriate, value should be determined as part of the baseline study through new survey and analysis. This requires definition of the criteria and factors that are considered to confer value on a landscape or on its components. There are a number of possible options:

- Draw on a list of those factors that are generally agreed to influence value (see Box 5.1). They need to be interpreted to reflect the particular legislative and policy context prevailing in particular places. The list is not comprehensive and other factors may be considered important in specific areas.
- Draw up a list of criteria and factors specific to the individual project and landscape context.
- Apply a form of the ecosystem services approach, although this is a cross-cutting and integrating approach and is likely to encroach on other themes or topics in the EIA. Although there is interest in this approach, experience of using it in EIA is limited, although it is under active consideration (IEMA, 2012a).

Box 5.1

Range of factors that can help in the identification of valued landscapes

- **Landscape quality (condition)**: A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.
- **Scenic quality**: The term used to describe landscapes that appeal primarily to the senses (primarily but not wholly the visual senses).
- **Rarity:** The presence of rare elements or features in the landscape or the presence of a rare Landscape Character Type.
- **Representativeness**: Whether the landscape contains a particular character and/or features or elements which are considered particularly important examples.
- **Conservation interests**: The presence of features of wildlife, earth science or archaeological or historical and cultural interest can add to the value of the landscape as well as having value in their own right.
- **Recreation value**: Evidence that the landscape is valued for recreational activity where experience of the landscape is important.
- **Perceptual aspects**: A landscape may be valued for its perceptual qualities, notably wildness and/or tranquillity.
- **Associations**: Some landscapes are associated with particular people, such as artists or writers, or events in history that contribute to perceptions of the natural beauty of the area.

Based on Swanwick and Land Use Consultants (2002)

In practice one option, or a combination of the first two options, is likely to be most effective. There are several key points to consider in deciding how to approach this: 5.29

- There cannot be a standard approach as circumstances will vary from place to place.
- Areas of landscape whose character is judged to be intact and in good condition, and where scenic quality, wildness or tranquillity, and natural or cultural heritage features make a particular contribution to the landscape, or where there are important associations, are likely to be highly valued.
- Many areas that will be subject to LVIA will be ordinary, everyday landscapes. In such areas some of the possible criteria may not apply and so there is likely to be greater emphasis on judging, for each landscape type or area, representation of typical character, the intactness of the landscape and the condition of the elements of the landscape. Scenic quality may also be relevant, and will need to reflect factors such as sense of place and aesthetic and perceptual qualities. Judgements may be needed about which particular components of the landscape contribute most to its value.

Individual components of the landscape, including particular landscape features, and notable aesthetic or perceptual qualities can be judged on their importance in their own right, including whether or not they can realistically be replaced. They can also be judged on their contribution to the overall character and value of the wider landscape. For example, an ancient hedgerow may have high value in its own right but also be important because it is part of a hedgerow pattern that contributes significantly to landscape character. 5.30

Assessment of the value attached to the landscape should be carried out within a clearly recorded and transparent framework so that decision making is clear. Fieldwork can either be combined with the Landscape Character Assessment work, as described above, or be carried out at a later stage. Field observations supporting the assessment should be clearly recorded using appropriate record sheets, and records should as far as possible be retained in an accessible form for future reference. If there is reliance on previous assessments, for example carried out by a local authority as part of a wider Landscape Character Assessment or landscape management strategy, this must be made clear and such information should be treated in a critically reflective way. 5.31

A role for consultation

In making the assessment of landscape value it is important where possible to draw on information and opinions from consultees. Consultation bodies will usually give an expert view as well as providing relevant existing information. Consultations with local people or groups who use the landscape in different ways may, where practicable, also suggest the range of values that people attach to the landscape. Scoping discussions with the competent authority should help to determine the reasonable extent of such consultation. 5.32

Reporting on the baseline situation

5.33 When review of existing assessments and any new surveys are complete, and evidence about landscape value has been assembled, a landscape baseline report should be prepared. It should be a clear, well-structured, accessible report supported by illustrations where necessary and should:

- map, describe and illustrate the character of the landscape at an appropriate level of detail, covering both the wider study area and the site and its immediate surroundings, dividing it into Landscape Character Types and Areas as appropriate;
- identify and describe the individual elements and aesthetic and perceptual aspects of the landscape, particularly emphasising those that are key characteristics contributing to the distinctive character of the landscape;
- indicate the condition of the landscape, including the condition of elements or features such as buildings, hedgerows or woodland.

The aim should be to describe the landscape as it is at the time but also to consider what it may be like in the future in the absence of the proposal. This means projecting forward any trends in change and considering how they may affect the landscape over time, accepting that this involves a degree of speculation and uncertainty.

Predicting and describing landscape effects

5.34 Once the baseline information about the landscape is available this can be combined with understanding of the details of the proposed change or development that is to be introduced into the landscape to identify and describe the landscape effects.

- The first step is to identify the components of the landscape that are likely to be affected by the scheme, often referred to as the landscape receptors, such as overall character and key characteristics, individual elements or features, and specific aesthetic or perceptual aspects.
- The second step is to identify interactions between these landscape receptors and the different components of the development at all its different stages, including construction, operation and, where relevant, decommissioning and restoration/reinstatement.

5.35 The effects identified at the scoping stage should all be reviewed and amended, if necessary, in the light of any additional information available. New ones may also be identified as a result of the additional information obtained through consultation, baseline study and iterative development of the scheme design. The effects on landscape should embrace all the different types identified by the Regulations, namely the direct effects and any indirect, secondary, cumulative, short-, medium- and long-term, permanent and temporary, positive and negative effects of the development (as described in Paragraph 3.22). They are likely to include:

- change in and/or partial or complete loss of elements, features or aesthetic or perceptual aspects that contribute to the character and distinctiveness of the landscape;
- addition of new elements or features that will influence the character and distinctiveness of the landscape;
- combined effects of these changes on overall character.

Figure 5.9 Plan illustrating the effects of a proposed flood wall, showing partial and complete loss of trees and the location of the proposed development alongside visual receptors and designations

5.36 All effects that are considered likely to take place should be described as fully as possible:

- Effects on individual components of the landscape, such as loss of trees or buildings for example, or addition of new elements, should be identified and mapped (and if appropriate and helpful quantified by measuring the change).
- Changes in landscape character or quality/condition in particular places need to be described as fully as possible and illustrated by maps and images that make clear, as accurately as possible, what is likely to happen.

Good, clear and concise description of the effects that are identified is key to helping a wide range of people understand what may happen if the proposed change or development takes place.

5.37 One of the more challenging issues is deciding whether the landscape effects should be categorised as positive or negative. It is also possible for effects to be neutral in their consequences for the landscape. An informed professional judgement should be made about this and the criteria used in reaching the judgement should be clearly stated. They might include, but should not be restricted to:

- the degree to which the proposal fits with existing character;
- the contribution to the landscape that the development may make in its own right, usually by virtue of good design, even if it is in contrast to existing character.

The importance of perceptions of landscape is emphasised by the European Landscape Convention, and others may of course hold different opinions on whether the effects are positive or negative, but this is not a reason to avoid making this judgement, which will ultimately be weighed against the opinions of others in the decision-making process.

Assessing the significance of landscape effects

5.38 The landscape effects that have been identified should be assessed to determine their significance, based on the principles described in Paragraphs 3.23–3.36. Judging the significance of landscape effects requires methodical consideration of each effect identified and, for each one, assessment of the sensitivity of the landscape receptors and the magnitude of the effect on the landscape.

Sensitivity of the landscape receptors

5.39 Landscape receptors need to be assessed firstly in terms of their sensitivity, combining judgements of rheir susceptibility to the type of change or development proposed and the value attached to the landscape. In LVIA sensitivity is similar to the concept of landscape sensitivity used in the wider arena of landscape planning, but it is not the same as it is specific to the particular project or development that is being proposed and to the location in question.

Susceptibility to change

5.40 This means the ability of the landscape receptor (whether it he the overall character or quality/condition of a particular landscape type or area, or an individual element

and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.

5.41 The assessment may take place in situations where there are existing landscape sensitivity and capacity studies, which have become increasingly common. They may deal with the general type of development that is proposed, in which case they may provide useful preliminary background information for the assessment. But they cannot provide a substitute for the individual assessment of the susceptibility of the receptors in relation to change arising from the specific development proposal.

5.42 Some of these existing assessments may deal with what has been called 'intrinsic' or 'inherent' sensitivity, without reference to a specific type of development. These cannot reliably inform assessment of the susceptibility to change since they are carried out without reference to any particular type of development and so do not relate to the specific development proposed. Since landscape effects in LVIA are particular to both the specific landscape in question and the specific nature of the proposed development, the assessment of susceptibility must be tailored to the project. It should not be recorded as part of the landscape baseline but should be considered as part of the assessment of effects.

5.43 Judgements about the susceptibility of landscape receptors to change should be recorded on a verbal scale (for example high, medium or low), but the basis for this must be clear, and linked back to evidence from the baseline study.

Value of the landscape receptor

5.44 The baseline study will have established the value attached to the landscape receptors (see Paragraphs 5.19–5.31), covering:

- the value of the Landscape Character Types or Areas that may be affected, based on review of any designations at both national and local levels, and, where there are no designations, judgements based on criteria that can be used to establish landscape value;
- the value of individual contributors to landscape character, especially the key characteristics, which may include individual elements of the landscape, particular landscape features, notable aesthetic, perceptual or experiential qualities, and combinations of these contributors.

5.45 The value of the landscape receptors will to some degree reflect landscape designations and the level of importance which they signify, although there should not be over-reliance on designations as the sole indicator of value. Assessments should reflect:

- internationally valued landscapes recognised as World Heritage Sites;
- nationally valued landscapes (National Parks, Areas of Outstanding Natural Beauty, National Scenic Areas or other equivalent areas);
- locally valued landscapes, for example local authority landscape designations or, where these do not exist, landscapes assessed as being of equivalent value using clearly stated and recognised criteria;
- landscapes that are not nationally or locally designated, or judged to be of equivalent

value using clearly stated and recognised criteria, but are nevertheless valued at a community level.

5.46 There can be complex relationships between the value attached to landscape receptors and their susceptibility to change which are especially important when considering change within or close to designated landscapes. For example:

- An internationally, nationally or locally valued landscape does not automatically, or by definition, have high susceptibility to all types of change.
- It is possible for an internationally, nationally or locally important landscape to have relatively low susceptibility to change resulting from the particular type of development in question, by virtue of both the characteristics of the landscape and the nature of the proposal.
- The particular type of change or development proposed may not compromise the specific basis for the value attached to the landscape.

5.47 Landscapes that are nationally designated (National Parks and Areas of Outstanding Natural Beauty in England and Wales and their equivalents in Scotland and Northern Ireland) will be accorded the highest value in the assessment. If the area affected by the proposal is on the margin of or adjacent to such a designated area, thought may be given to the extent to which it demonstrates the characteristics and qualities that led to the designation of the area. Boundaries are very important in defining the extent of designated areas, but they often follow convenient physical features and as a result there may be land outside the boundary that meets the designation criteria and land inside that does not. Similar principles apply to locally designated landscapes but here the difficulty may be that the characteristics or qualities that provided the basis for their designation are not always clearly set down.

Magnitude of landscape effects

5.48 Each effect on landscape receptors needs to be assessed in terms of its size or scale, the geographical extent of the area influenced, and its duration and reversibility.

Size or scale

5.49 Judgements are needed about the size or scale of change in the landscape that is likely to be experienced as a result of each effect. This should be described, and also categorised on a verbal scale that distinguishes the amount of change but is not overly complex. For example, the effect of both loss and addition of new features may be judged as major, moderate, minor or none, or other equivalent words. The judgements should, for example, take account of:

- the extent of existing landscape elements that will be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape – in some cases this may be quantified;
- the degree to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by addition of new ones – for example, removal of hedges may change a small-scale, intimate landscape into a large-scale, open one, or introduction of new buildings or tall structures may alter open skylines;

- whether the effect changes the key characteristics of the landscape, which are critical to its distinctive character.

Geographical extent

5.50 The geographical area over which the landscape effects will be felt must also be considered. This is distinct from the size or scale of the effect – there may for example be moderate loss of landscape elements over a large geographical area, or a major addition affecting a very localised area. The extent of the effects will vary widely depending on the nature of the proposal and there can be no hard and fast rules about what categories to use. In general effects may have an influence at the following scales, although this will vary according to the nature of the project and not all may be relevant on every occasion:

- at the site level, within the development site itself;
- at the level of the immediate setting of the site;
- at the scale of the landscape type or character area within which the proposal lies;
- on a larger scale, influencing several landscape types or character areas.

Duration and reversibility of the landscape effects

5.51 These are separate but linked considerations. Duration can usually be simply judged on a scale such as short term, medium term or long term, where, for example, short term might be zero to five years, medium term five to ten years and long term ten to twenty-five years. There is no fixed rule on these definitions and so in each case it must be made clear how the categories are defined and the reasons for this.

5.52 Reversibility is a judgement about the prospects and the practicality of the particular effect being reversed in, for example, a generation. This can be a very important issue – for example, while some forms of development, like housing, can be considered permanent, others, such as wind energy developments, are often argued to be reversible since they have a limited life and could eventually be removed and/or the land reinstated. Mineral workings, for example, may be partially reversible in that the landscape can be restored to something similar to, but not the same as, the original. If duration is included in an assessment of the effects, the assumptions behind the judgement must be made clear. Duration and reversibility can sometimes usefully be considered together, so that a temporary or partially reversible effect is linked to definition of how long that effect will last.

Judging the overall significance of landscape effects

5.53 To draw final conclusions about significance, the separate judgements about the sensitivity of the landscape receptors and the magnitude of the landscape effects need to be combined to allow a final judgement to be made about whether each effect is significant or not, as required by the Regulations, following the principles set out in Chapter 3. The rationale for the overall judgement must be clear, demonstrating how the assessments of sensitivity and magnitude have been linked in determining the overall significance of each effect.

5.54 Significance can only be defined in relation to each development and its specific location. It is for each assessment to determine how the judgements about the landscape receptors and landscape effects should be combined to arrive at significance and to

explain how the conclusions have been derived. There may also be a need to adopt a consistent approach across all the EIA topic areas and the EIA co-ordinator will need to be involved in the decisions on suitable approaches.

5.55 As indicated in Chapter 3 (see Paragraph 3.30) there are two main approaches to combining the individual judgements made under the different contributing criteria (although there may also be others):

1. They can be sequentially combined: susceptibility to change and value can be combined into an assessment of sensitivity for each receptor, and size/scale, geographical extent and duration and reversibility can be combined into an assessment of magnitude for each effect. Magnitude and sensitivity can then be combined to assess overall significance.
2. All the judgements against the individual criteria can be arranged in a table to provide an overall profile of each identified effect. An overview can then be taken of the distribution of the judgements for each criterion to make an informed professional assessment of the overall significance of each effect.

5.56 There are no hard and fast rules about what makes a significant effect, and there cannot be a standard approach since circumstances vary with the location and landscape context and with the type of proposal. At opposite ends of a spectrum it is reasonable to say that:

- major loss or irreversible negative effects, over an extensive area, on elements and/or aesthetic and perceptual aspects that are key to the character of nationally valued landscapes are likely to be of the greatest significance;
- reversible negative effects of short duration, over a restricted area, on elements and/or aesthetic and perceptual aspects that contribute to but are not key

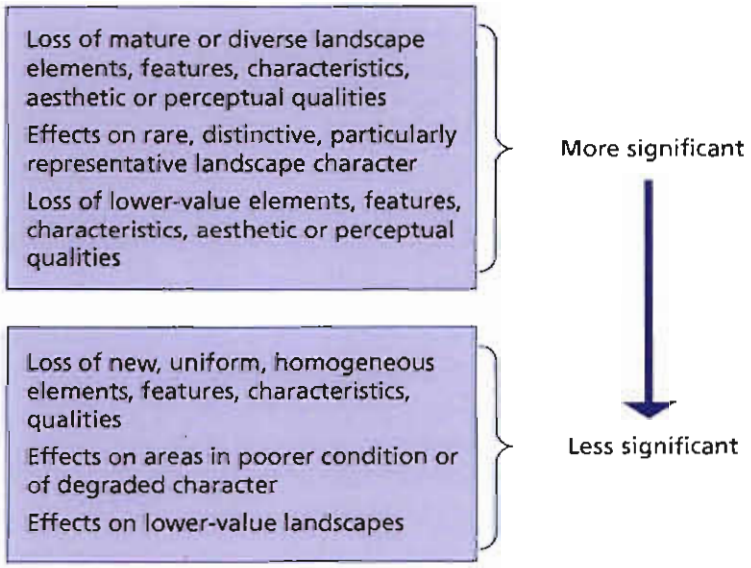


Figure 5.10 Scale of significance

characteristics of the character of landscapes of community value are likely to be of the least significance and may, depending on the circumstances, be judged as not significant;

- where assessments of significance place landscape effects between these extremes, judgements must be made about whether or not they are significant, with full explanations of why these conclusions have been reached.

Where landscape effects are judged to be significant and adverse, proposals for preventing/avoiding, reducing, or offsetting or compensating for them (referred to as mitigation) should be described. The significant landscape effects remaining after mitigation should be summarised as the final step in the process. 5.57

Further detail on mitigation is provided in Paragraphs 4.21–4.43.

Summary advice on good practice

- An assessment of landscape effects should consider how the proposal will affect the elements that make up the landscape, its aesthetic and perceptual aspects, its distinctive character and the key characteristics that contribute to this.
- Scoping should try to identify the range of possible landscape effects to be considered, but a decision can be made, in discussion with the competent authority, whether any are not likely to be significant and therefore do not need to be considered further.
- Scoping should also identify the area of landscape that needs to be covered in assessing landscape effects. The study area should include the site itself and the extent of the wider landscape around it which it is likely that the proposed development may influence. This will normally be based on the extent of Landscape Character Areas likely to be significantly affected either directly or indirectly, but the Zone of Theoretical Visibility developed as part of the assessment of visual effects (see Chapter 6) may also inform the decision.
- Baseline landscape studies should be appropriate to the context into which the development proposal will be introduced and in line with current guidance and terminology for Landscape Character Assessment, townscape character assessment and seascape character assessment, as relevant.
- Baseline studies for LVIA should ensure that, working with experts if necessary, cultural heritage features and relevant aspects of the historic landscape are recorded and judgements made about their contribution to the landscape, townscape or seascape. Assessment of the effects of development on historic aspects of the landscape must, however, be dealt with in the cultural heritage topic of an EIA and not as part of the landscape and visual topic.
- The first step in preparing the landscape baseline should be to review any relevant existing assessments that may be available. Existing assessments must be reviewed

critically as their quality may vary, some may be dated and some may not be suited to the task in hand.

It is essential to decide at the outset what scale of character assessment information is needed to provide a basis for the LVIA and then to judge the value of existing assessments against this.

Existing assessments may need to be reviewed and interpreted to adapt them for use in LVIA, and fieldwork should check the applicability of the assessment throughout the study area and refine it where necessary.

Where new landscape surveys are required, either of the whole study area or of the site and its immediate surroundings, they should follow recommended methods and up-to-date guidance.

Evidence about change in the landscape is an important part of the baseline. The condition of the landscape and any evidence of current pressures causing change in the landscape should be documented.

The value of the landscape that may be affected should be established as part of the baseline description. This will inform judgements about the significance of the effects.

A review of existing landscape designations is usually the starting point in understanding landscape value, but the value attached to undesignated landscapes also needs to be carefully considered and individual elements of the landscape – such as trees, buildings or hedgerows – may also be valued.

A landscape baseline report should set out the findings of the baseline work. It should be clear, well structured, accessible and supported by appropriate illustrations. The aim should be to describe the landscape as it is at the time but also to consider, if possible, what it may be like in the future, without the proposal.

To identify and describe the landscape effects the components of the landscape that are likely to be affected by the scheme, often referred to as the 'landscape receptors', should be identified and interactions between them and the different components of the development considered, covering all the types of effect required by the Regulations.

The effects identified at the scoping stage should all be reviewed in the light of the additional information obtained through consultation, baseline study and iterative development of the scheme design. They should be amended as appropriate and new ones may also be identified.

An informed professional judgement should be made about whether the landscape effects should be categorised as positive or negative (or in some cases neutral), with the criteria used in reaching this judgement clearly stated.

The landscape effects must be assessed to determine their significance, based on the principles described in Chapter 3. Judging the significance of landscape effects requires methodical consideration of each effect that has been identified, its magnitude and the sensitivity of the landscape receptor affected.

To draw final conclusions about significance the separate judgements about sensitivity and magnitude need to be combined into different categories of significance, following the principles set out in Chapter 3.

The rationale for the overall judgement must be clear, demonstrating how the judgements about the landscape receptor and the effect have been linked in determining overall significance.

A clear step-by-step process of making judgements should allow the identification of significant effects to be as transparent as possible, provided that the effects are identified and described accurately, the basis of the judgements at each stage is explained and the effects are clearly reported, with good text to explain them and summary tables to support the text.

Final judgements must be made about which landscape effects are significant, as required by the Regulations. There are no hard and fast rules about what makes a significant effect, and there cannot be a standard approach since circumstances vary with the location and landscape context and with the type of proposal.

Where landscape effects are judged to be significant and adverse, proposals made for preventing/avoiding, reducing, or offsetting or compensating for them (referred to as mitigation) should be described. The significant landscape effects remaining after mitigation should then be summarised as the final step in the process.

Chapter 6

Assessment of visual effects

Chapter overview

- Scope
- Establishing the visual baseline
- Predicting and describing visual effects
- Assessing the significance of visual effects
- Judging the overall significance of visual effects

Scope

6.1 An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity. The concern here is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements.

6.2 Scoping should identify the area that needs to be covered in assessing visual effects, the range of people who may be affected by these effects and the related viewpoints in the study area that will need to be examined. The study area should be agreed with the competent authority at the outset and should consider the area from which the proposed development will potentially be visible. The emphasis must be on a reasonable approach which is proportional to the scale and nature of the proposed development. At the scoping stage the study area will only be defined in a preliminary way and is likely to be modified as more detailed analysis is carried out, in discussion with the competent authority.

See Paragraphs 6.6–6.23 for more detail on mapping areas of visibility and on visual receptors and representative viewpoints.

Establishing the visual baseline

6.3 Baseline studies for visual effects should establish, in more detail than is possible in the scoping stage, the area in which the development may be visible, the different groups of people who may experience views of the development, the viewpoints where they will be affected and the nature of the views at those points. Where possible it can also be useful to establish the approximate or relative number of different groups of people who will be affected by the changes in views or visual amenity, while at the same time recognising that assessing visual effects is not a quantitative process.

6.4 These factors are all interrelated and need to be considered in an integrated way rather than as a series of separate steps. It is also important to be aware that visual baseline

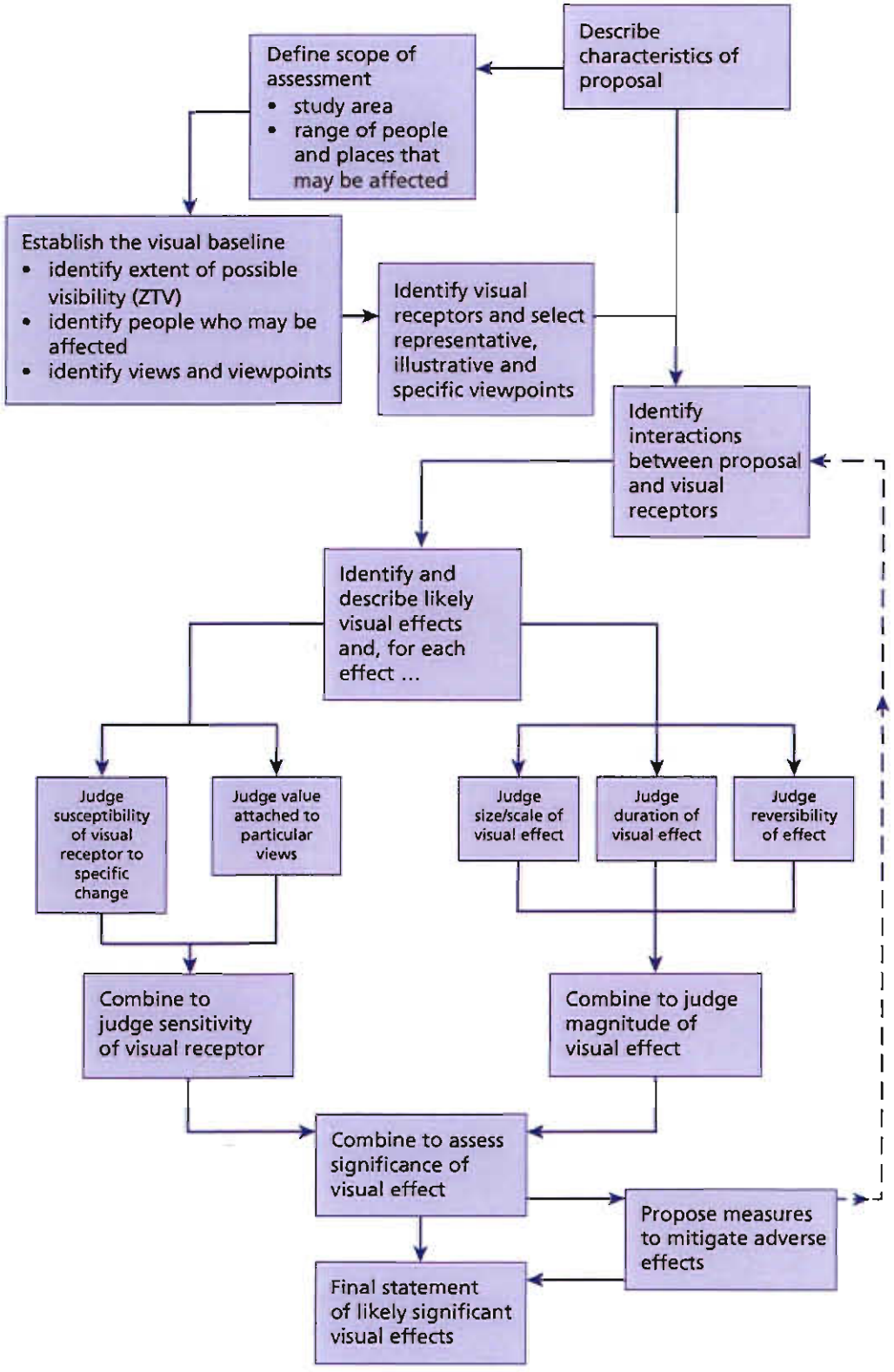


Figure 6.1 Steps in assessing visual effects

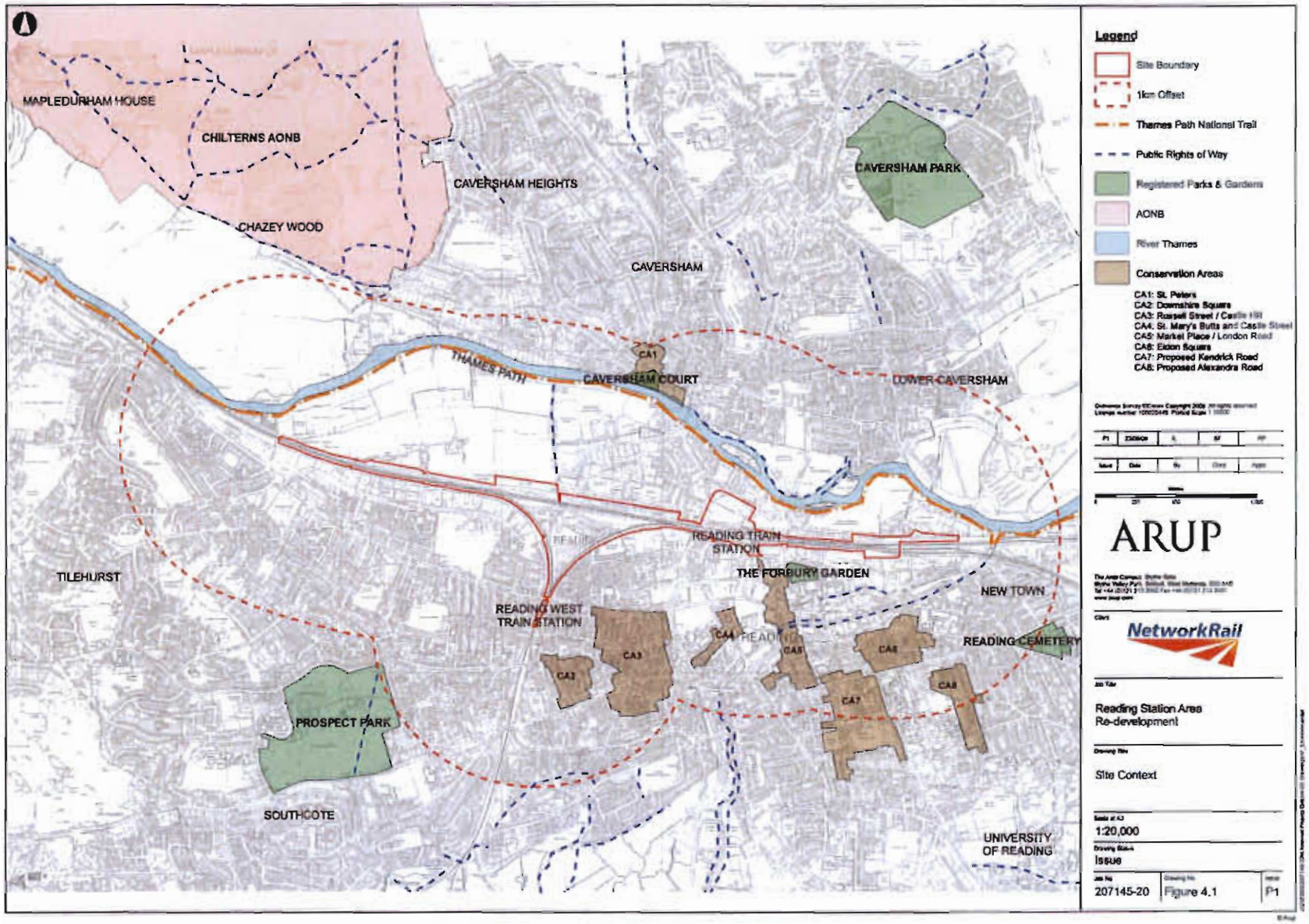


Figure 6.2 A site context plan identifying public rights of way, registered parks and gardens, an Area of Outstanding Natural Beauty and Conservation Areas. People visiting or using any of these may be visual receptors

data may require updating at intervals, particularly to reflect modifications to the design as a result of the iterative design process.

6.5 Interrelationships with the cultural heritage topic area need to be borne in mind when developing the visual baseline and identifying visual effects. Specialist input from cultural heritage professionals is likely to be required to interpret the range of relevant cultural heritage studies that may help to identify important viewpoints. Development proposals may, for example, have visual effects on the settings of heritage assets, including important views to and from those assets – settings are defined as 'the surroundings in which a heritage asset is experienced' (English Heritage, 2011). Where there are heritage assets in the vicinity of the proposed development their settings will need to be taken into account when mapping visibility and defining important views that may be altered by the proposal. In urban areas there may be particular interest in strategic views relating to heritage assets, landmarks and other key views and vistas that may have been defined by cultural heritage experts.[1] Some townscape assessments can also help with this.

Mapping visibility

6.6 Land that may potentially be visually connected with the development proposal – that is, areas of land from which it may potentially be seen – must be identified and mapped at the outset, bearing in mind the comments in Paragraph 6.2 about reasonableness and proportionality. Visibility mapping is an important tool in preparing the visual effects baseline but does not in its own right identify the effects. It can also play an important part in the different stages of the iterative design process. It can, for example, contribute to the early stages of site design and assessment to determine the potential visibility of a site compared to a similar development located on an alternative site. It can also be used to help in the consideration of concept layout and design alternatives in response to the potential visibility of different options.

6.7 There are two main approaches to mapping visibility:

1. Manual approaches use map interpretation, cross sections through the site in relation to its surroundings and visual envelope mapping on site. This means standing at the location of the development and looking out to identify and map the land that is visible from that and other points within the site. This can establish the outer limit or visual envelope of the land that may be visually connected with the proposal. These methods are time consuming and involve a degree of subjectivity since they depend on judgements made by the surveyor and do not allow for the fact that the highest point of the development is likely to be well above the surveyor's eye line. Nevertheless, they can still be helpful in initial scoping and for smaller projects, including appraisals outside EIA.
2. Digital approaches use elevation data to create a digital terrain model of the study area and calculate inter-visibility between points or along lines radiating out from the development location, to construct a map showing the area from which the proposal may theoretically be visible.

6.8 Use of digitally mapped areas of visibility has increasingly become the norm since the previous edition of this guidance was published, although it is less commonly used in

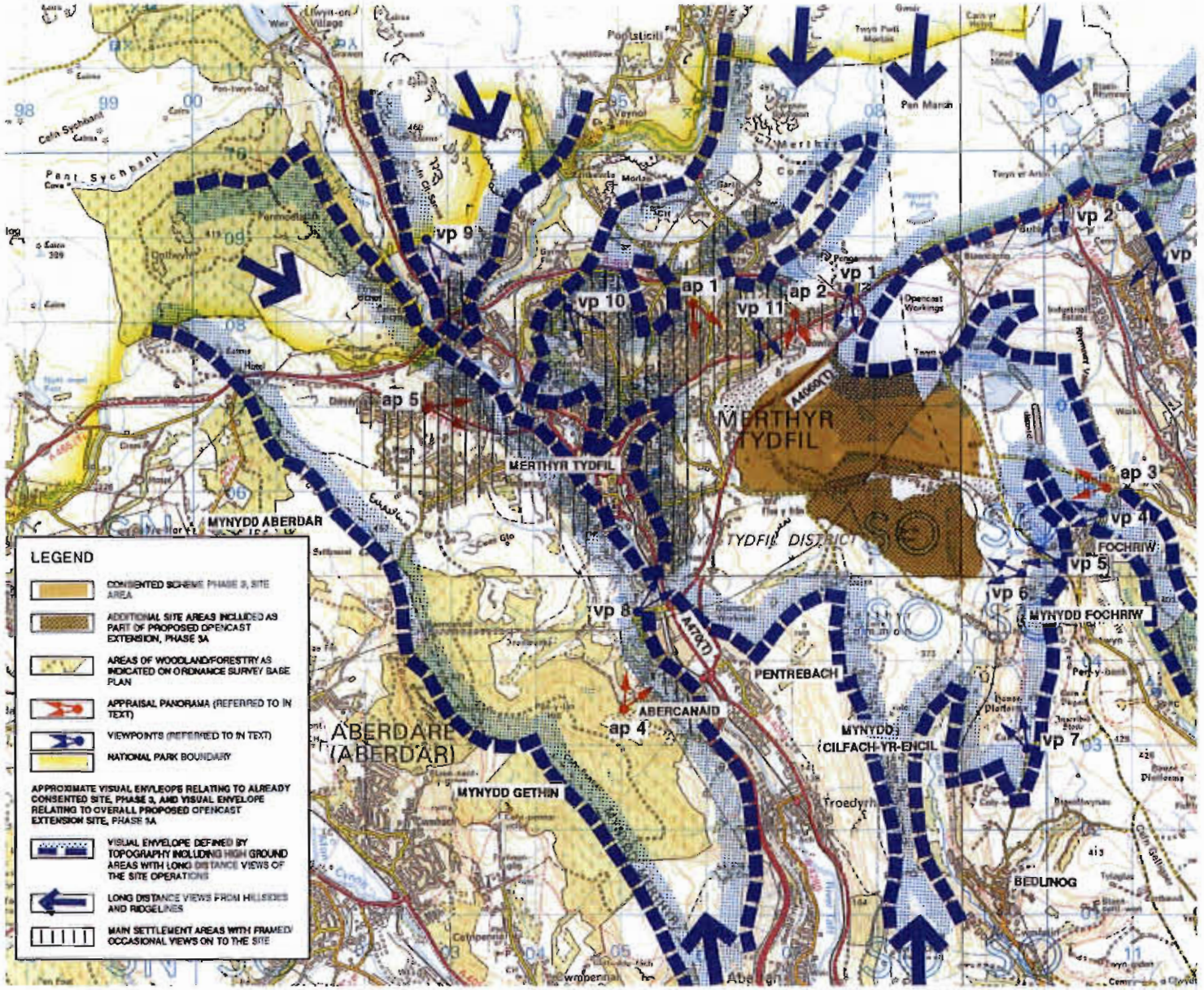


Figure 6.3 A manual approach to visual envelope mapping using topographic analysis and viewpoint surveys

urban areas because of the difficulty of mapping and modelling accurately the buildings and structures that would influence potential visibility. The map products of this process are referred to as either the Zone of Visual Influence (ZVI) or the Zone of Theoretical Visibility (ZTV). The second of these (ZTV) is now recommended since it makes clear that the area so defined only shows land from which the proposal may theoretically be visible. That is, it treats the world as 'bare earth' and does not take account of potential screening by vegetation or buildings. Desk study, using digital methods, should identify the ZTV for the development proposal and, where appropriate, should be constructed using multiple-point analysis, combining ZTV maps for different parts of the proposal.

6.9 In the case of linear developments such as road or rail schemes the ZTV must be constructed for a sequence of points along the road, a process that can now easily be carried out digitally (see Figure 6.5). In addition, the height of structures such as bridges or gantries, and of vehicles that will use the route, should be built into the ZTV construction so that the visibility of all aspects of the proposal is considered.

6.10 The ZTV mapping is the desk study component of the visibility analysis. In reality many factors other than terrain will influence actual visibility. Other landscape components that may affect visibility, for example buildings, walls, fences, trees, hedgerows, woodland and banks, can in theory be added to digital models that are based on terrain but this is difficult to achieve accurately, especially for a large study area. Their effects are best judged by field surveys that can examine and record their location, size and extent, and their effect in screening visibility at key points. Landmarks in the vicinity of the site can be useful as reference points when looking towards the site to identify its location in the view, and public viewpoints that may have views of the site and proposed development can be identified and the extent of the views checked. Site surveys are therefore essential to provide an accurate baseline assessment of visibility.

6.11 Both ZTV mapping and site survey should assume that the observer eye height is some 1.5 to 1.7 metres above ground level, based on the midpoint of average heights for men and women. The assumed eye height used must in any case be clearly stated. The effects of distance on views must also be considered – for example parts of the ZTV that are most distant from the proposal may be omitted from the final visual effects baseline if it is judged that visibility from this distance will be extremely limited. This will vary with the type of project and must be agreed with the competent authority.

6.12 For some types of development the visual effects of lighting may be an issue. In these cases it may be important to carry out night-time 'darkness' surveys of the existing conditions in order to assess the potential effects of lighting and these effects need to be taken into account in generating the 3D model of the scheme. Quantitative assessment of illumination levels, and incorporation into models relevant to visual effects assessment, will require input from lighting engineers, but the visual effects assessment will also need to include qualitative assessments of the effects of the predicted light levels on night-rime visibility. The visibility survey and definition of ZTVs may need to be reviewed and updated as siting, layout and design proposals are progressively refined and lighting effects become clearer.

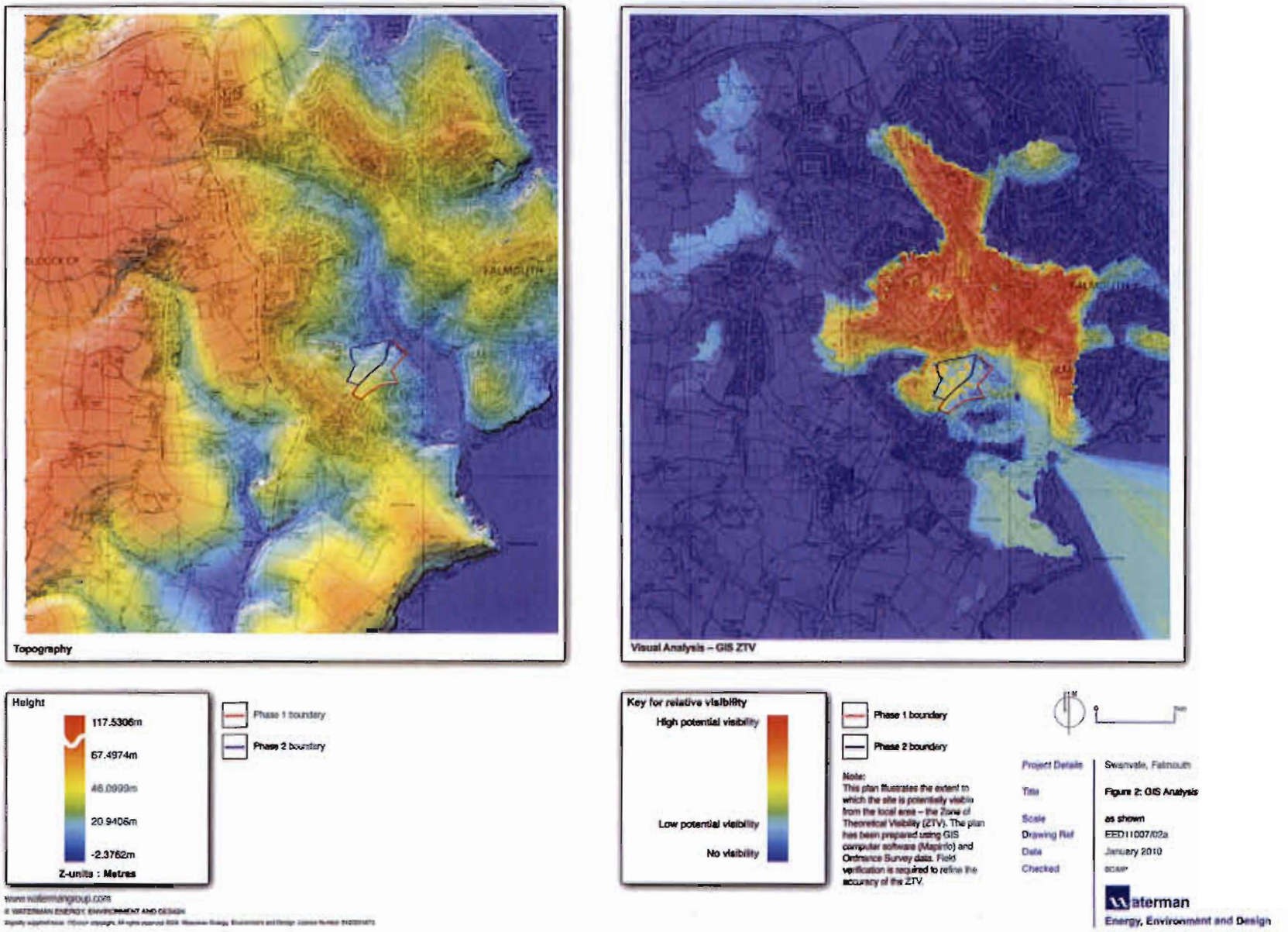


Figure 6.4 Topographical analysis and ZTV for proposed urban development

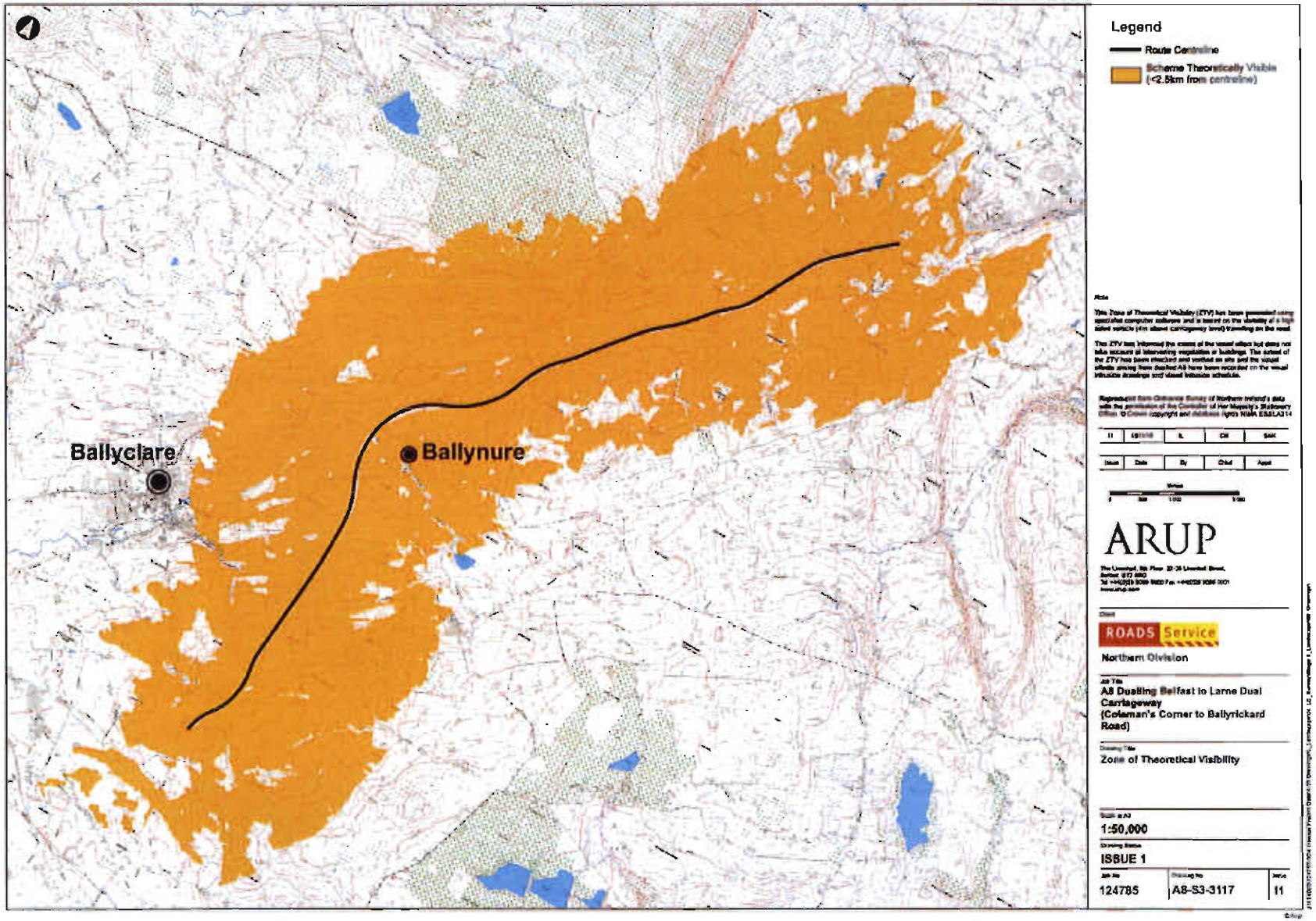


Figure 6.5 Computer-generated ZTV of a road scheme to a distance of 2.5 kilometres from the centreline

Figure 6.6 View over the South Wales valley town of Rhymney, showing the contrast of urban lighting in the valley and the darkness of the enclosing ridges

Receptors of visual effects

6.13 The ZTV identifies land that, theoretically, is visually connected with the proposal and this is refined by site survey to confirm the extent of visibility. But in parts of this area there will be relatively few people to experience the effects of the proposal on views. The baseline studies must therefore identify the people within the area who will be affected by the changes in views and visual amenity – usually referred to as 'visual receptors'. They may include people living in the area, people who work there, people passing through on road, rail or other forms of transport, people visiting promoted landscapes or attractions, and people engaged in recreation of different types.

6.14 People generally have differing responses to changes in views and visual amenity depending on the context (location, time of day, season, degree of exposure to views) and purpose for being in a particular place (for example recreation, residence or employment, or passing through on roads or by other modes of transport). During passage through the landscape, certain activities or locations may be specifically associated with the experience and enjoyment of the landscape, such as the use of paths, tourist or scenic routes and associated viewpoints.

6.15 The types of viewers who will be affected and the places where they will be affected should be identified. Where possible an estimate should also be made of the numbers of the different types of people who might be affected in each case. Where no firm data are available this may simply need to be a relative judgement, for example noting comparatively few people in one place compared with many in another.

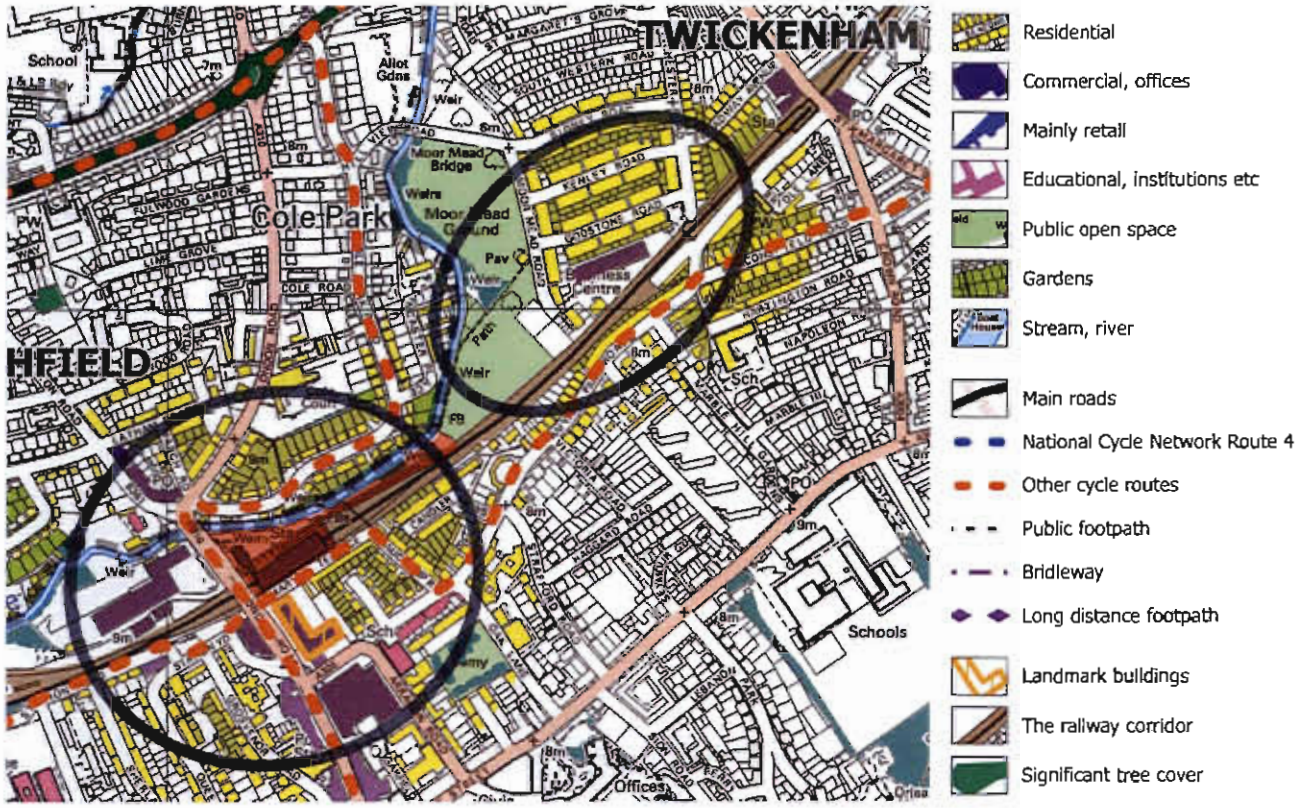


Figure 6.7 Mapping the locations of potential visual receptors in an urban context

Viewpoints and views

The viewpoints from which the proposal will actually be seen by these different groups of people should then be identified (but see Paragraphs 6.18 and 6.19 for detail on selecting viewpoints). They may include: 6.16

- public viewpoints, including areas of land and buildings providing public access – in England and Wales, this includes different forms of open access land, and public footpaths and bridleways; in Scotland, a range of recognised paths also exists, while access rights apply to most land and inland water;
- transport routes where there may be views from private vehicles and from different forms of public transport;
- places where people work.

In some instances it may also be appropriate to consider private viewpoints, mainly from residential properties. In these cases the scope of such an assessment should be agreed with the competent authority, as must the approach to identifying representative viewpoints since it is impractical to visit all properties that might be affected. Effects of development on private property are frequently dealt with mainly through 'residential amenity assessments'. These are separate from LVIA although visual effects assessment may sometimes be carried out as part of a residential amenity assessment, 6.17

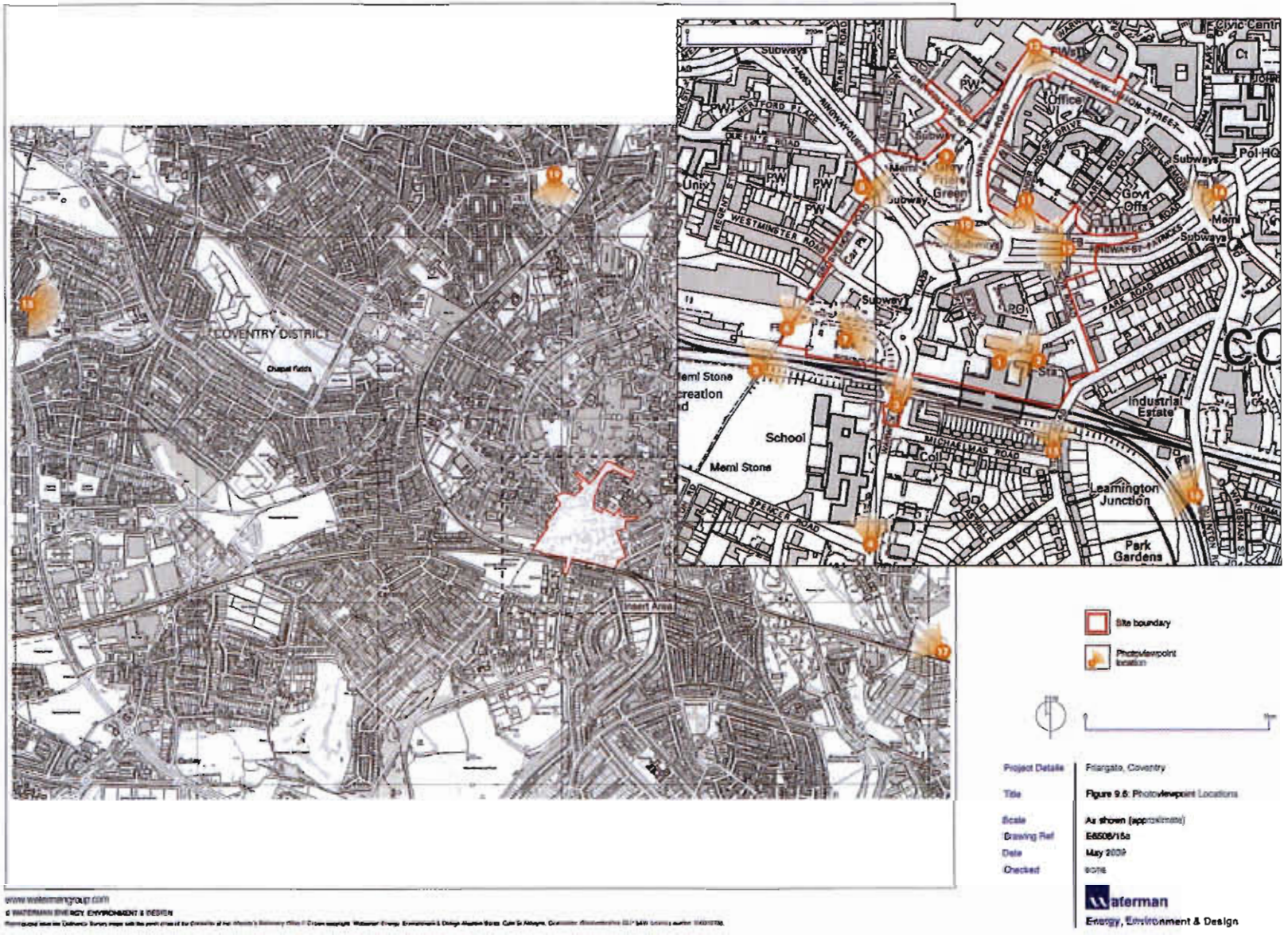


Figure 6.8 Plan showing a range of viewpoints around a proposed urban development to be used for photographs of existing views

in which case this will supplement and form part of the normal LVIA for a project. Some of the principles set our here for dealing with visual effects may help in such assessments but there are specific requirements in residential amenity assessment.

The viewpoints to be used in an assessment of visual effects should be selected initially through discussions with the competent authority and other interested parties at the scoping stage. But selection should also be informed by the ZTV analysis, by fieldwork, and by desk research on access and recreation, including footpaths, bridleways and public access land, tourism including popular vantage points, and distribution of population. 6.18

Viewpoints selected for inclusion in the assessment and for illustration of the visual effects fall broadly into three groups: 6.19

1. representative viewpoints, selected to represent the experience of different types of visual receptor, where larger numbers of viewpoints cannot all be included individually and where the significant effects are unlikely to differ – for example, certain points may be chosen to represent the views of users of particular public footpaths and bridleways;
2. specific viewpoints, chosen because they are key and sometimes promoted viewpoints within the landscape, including for example specific local visitor attractions, viewpoints in areas of particularly noteworthy visual and/or recreational amenity such as landscapes with statutory landscape designations, or viewpoints with particular cultural landscape associations;
3. illustrative viewpoints, chosen specifically to demonstrate a particular effect or specific issues, which might, for example, be the restricted visibility at certain locations.

The selection of the final viewpoints used for the assessment should take account of a range of factors, including: 6.20

- the accessibility to the public;
- the potential number and sensitivity of viewers who may be affected;
- the viewing direction, distance (i.e. short-, medium- and long-distance views) and elevation;
- the nature of the viewing experience (for example static views, views from settlements and views from sequential points along routes);
- the view type (for example panoramas, vistas and glimpses);
- the potential for cumulative views of the proposed development in conjunction with other developments.

Issues relating to the cumulative effects of proposals are covered in Chapter 7.

The viewpoints used need to cover as wide a range of situations as is possible, reasonable and necessary to cover the likely significant effects. It is not possible to give specific guidance on the appropriate number of viewpoints since this depends on the context, the nature of the proposal and the range and location of visual receptors. The 6.21

emphasis must always be on proportionality in relation to the scale and nature of the development proposal and its likely significant effects, and on agreement with the competent authority and consultation bodies.

6.22 In addition to fixed views, the viewpoints should also, as far as possible, cover important sequential views along key routes and transport corridors. Viewpoints should cover both near and more distant views, though not so distant as to be meaningless, unless it is useful to demonstrate the influence of distance. And they should cover the full range of different types of people who may be affected. The detailed location of each viewpoint should be carefully considered and should be as typical or representative as possible of the view likely to be experienced there. The details of viewpoint locations should be accurately mapped and catalogued and the direction and area covered by the view recorded. The information should be sufficient for someone else to return to the exact location and record the same view.

6.23 At each agreed viewpoint baseline photographs should be taken to record the existing views. The Landscape Institute has published separate technical guidance on photography and photomontage in Landscape and Visual Impact Assessment (Landscape Institute, 2011), which should be consulted when taking baseline photographs. Additional useful information is also available from other sources.[2]

Combining the baseline information

6.24 The completed visual baseline should focus on information that will help to identify significant visual effects. Visual receptors, viewpoints and views that have been

Figure 6.9 The details of viewpoint locations should be accurately mapped and catalogued and the direction and area covered by the view recorded

identified as unlikely to experience significant visual effects either at the scoping stage or in establishing the baseline should not be included in detailed reporting but should be noted, with reasons given for their exclusion. A baseline report should combine information on:

- the type and relative numbers of people (visual receprors) likely to be affected, making clear the activities they are likely to be involved in;
- the location, nature and characteristics of the chosen representative, specific and illustrative viewpoints, with details of the visual receptors likely to be affected at eacb;
- the nature, composition and characteristics of the existing views experienced at these viewpoints, including direction of view;
- the visual characteristics of the existing views, for example the nature and extent of the skyline, aspects of visual scale and proportion, especially with respect to any particular horizontal or vertical emphasis, and any key foci;
- elements, such as landform, buildings or vegetation, which may interrupt, filter or otherwise influence the views.

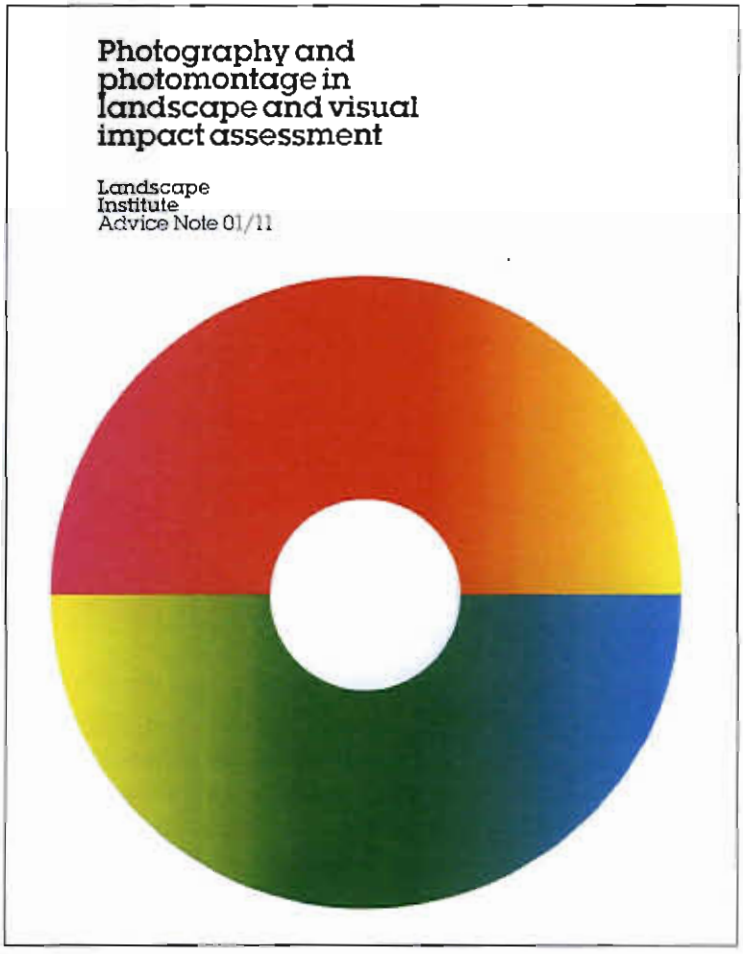


Figure 6.10 Landscape Institute technical advice note

6.25 The potential extent to which the site of the proposed development is visible from surrounding areas (the ZTV), the chosen viewpoints, the types of visual receptor affected and the nature and direction of views can all be combined in well-designed plans. Existing views should be illustrated by photographs or sketches with annotations added to emphasise any particularly important components of each view and to help viewers understand what they are looking at. It is important to include technical information about the photography used to record the baseline, including camera details, date and time of photography and weather conditions.

Predicting and describing visual effects

6.26 Preparation of the visual baseline is followed by the systematic identification of likely effects on the potential visual receptors. Considering the different sources of visual effects alongside the principal visual receptors that might be affected, perhaps by means of a table, will assist in the initial identification of likely significant effects for further study. Changes in views and visual amenity may arise from built or engineered forms and/or from soft landscape elements of the development. Increasingly, attention is being paid to the visual effects of offshore developments on what may be perceived to be valued coastal views.

6.27 In order to assist in description and comparison of the effects on views it can be helpful to consider a range of issues, which might include, but are not restricted to:

- the nature of the view of the development, for example a full or partial view or only a glimpse;
- the proportion of the development or particular features that would be visible (such as full, most, small part, none);
- the distance of the viewpoint from the development and whether the viewer would focus on the development due to its scale and proximity or whether the development would be only a small, minor element in a panoramic view;
- whether the view is stationary or transient or one of a sequence of views, as from a footpath or moving vehicle;
- the nature of the changes, which must be judged individually for each project, but may include, for example, changes in the existing skyline profile, creation of a new visual focus in the view, introduction of new man-made objects, changes in visual simplicity or complexity, alteration of visual scale, and change to the degree of visual enclosure.

6.28 Consideration should be given to the seasonal differences in effects arising from the varying degree of screening and/or filtering of views by vegetation that will apply in summer and winter. Assessments may need to be provided for both the winter season, with least leaf cover and therefore minimum screening, and for fuller screening in summer conditions. Discussion with the competent authority will help to determine whether the emphasis should be on the maximum visibility scenario of the winter condition of vegetation, or whether both summer and winter conditions should be used. The timing of the assessment work and the project programme will also influence the practicality of covering more than one season.

As with landscape effects an informed professional judgement should be made as to whether the visual effects can be described as positive or negative (or in some cases neutral) in their consequences for views and visual amenity. This will need to be based on a judgement about whether the changes will affect the quality of the visual experience for those groups of people who will see the changes, given the nature of the existing views. 6.29

Methods of communicating visual effects are covered in Chapter 8.

Assessing the significance of visual effects

The visual effects that have been identified must be assessed to determine their significance, based on the principles described in Paragraphs 3.23–3.36. As with landscape effects, this requires methodical consideration of each effect identified and, for each one, assessment of the nature of the visual receptors and the nature of the effect on views and visual amenity. 6.30

Sensitivity of visual receptors

It is important to remember at the outset that visual receptors are all people. Each visual receptor, meaning the particular person or group of people likely to be affected at a specific viewpoint, should be assessed in terms of both their susceptibility to change in views and visual amenity and also the value attached to particular views. 6.31

Susceptibility of visual receptors to change

The susceptibility of different visual receptors to changes in views and visual amenity is mainly a function of: 6.32

- the occupation or activity of people experiencing the view at particular locations; and
- the extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations.

The visual receptors most susceptible to change are generally likely to include: 6.33

- residents at home (but see Paragraph 6.36);
- people, whether residents or visitors, who are engaged in outdoor recreation, including use of public rights of way, whose attention or interest is likely to be focused on the landscape and on particular views;
- visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience;
- communities where views contribute to the landscape setting enjoyed by residents in the area.

Travellers on road, rail or other transport routes tend to fall into an intermediate category of moderate susceptibility to change. Where travel involves recognised scenic routes awareness of views is likely to be particularly high.

6.34 Visual receptors likely to be less sensitive to change include:

- people engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape;
- people at their place of work whose attention may be focused on their work or activity, not on their surroundings, and where the setting is not important to the quality of working life (although there may on occasion be cases where views are an important contributor to the setting and to the quality of working life).

6.35 This division is not black and white and in reality there will be a gradation in susceptibility to change. Each project needs to consider the nature of the groups of people who will be affected and the extent to which their attention is likely to be focused on views and visual amenity. Judgements about the susceptibility of visual receptors to change should be recorded on a verbal scale (for example high, medium or low) but the basis for this must be clear, and linked back to evidence from the baseline study.

6.36 The issue of whether residents should be included as visual receptors and residential properties as private viewpoints has been discussed in Paragraph 6.17. If discussion with the competent authority suggests that they should be covered in the assessment of visual effects it will be important to recognise that residents may be particularly susceptible to changes in their visual amenity – residents at home, especially using rooms normally occupied in waking or daylight hours, are likely to experience views for longer than those briefly passing through an area. The combined effects on a number of residents in an area may also be considered, by aggregating properties within a settlement, as a way of assessing the effect on the community as a whole. Care must, however, be taken first to ensure that this really does represent the whole community and second to avoid any double counting of the effects.

Value attached to views

6.37 Judgements should also be made about the value attached to the views experienced. This should take account of:

- recognition of the value attached to particular views, for example in relation to heritage assets, or through planning designations;
- indicators of the value attached to views by visitors, for example through appearances in guidebooks or on tourist maps, provision of facilities for their enjoyment (such as parking places, sign boards and interpretive material) and references to them in literature or art (for example 'Ruskin's View' over Lunedale, or the view from the Cob in Porthmadog over Traeth Mawr to Snowdonia which features in well-known Welsh paintings, and the 'Queen's View' in Scotland).

Magnitude of the visual effects

Each of the visual effects identified needs to be evaluated in terms of its size or scale, the geographical extent of the area influenced, and its duration and reversibility. 6.38

Size or scale

Judging the magnitude of the visual effects identified needs to take account of: 6.39

- the scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the proposed development;
- the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and texture;
- the nature of the view of the proposed development, in terms of the relative amount of time over which it will be experienced and whether views will be full, partial or glimpses.

Geographical extent

The geographical extent of a visual effect will vary with different viewpoints and is likely to reflect: 6.40

- the angle of view in relation to the main activity of the receptor;
- the distance of the viewpoint from the proposed development;
- the extent of the area over which the changes would be visible.

Duration and reversibility of visual effects

As with landscape effects these are separate but linked considerations. Similar categories should be used, such as short term, medium term or long term, provided that their meaning is clearly stated with clear criteria for the lengths of time encompassed in each case. Similar considerations related to reversibility apply, as set out in Paragraph 5.52. 6.41

Judging the overall significance of visual effects

To draw final conclusions about significance the separate judgements about the sensitivity of the visual receptors and the magnitude of the visual effects need to be combined, to allow a final judgement about whether each effect is significant or not, as required by the Regulations, following the general principles set out in Chapter 3, and also in Chapter 5 in relation to landscape effects. Significance of visual effects is not absolute and can only be defined in relation to each development and its specific location. It is for each assessment to determine the approach and if necessary to adopt a consistent approach across all the EIA topic areas. 6.42

As indicated in Chapter 3, there are two main approaches to combining the individual judgements made under the criteria (although there may also be others): 6.43

1. They can be sequentially combined into assessments of sensitivity for each receptor and magnitude for each effect. Sensitivity and magnitude can then be combined to assess overall significance.

2. They can be arranged in a table to provide an overall profile of each identified effect. An overview can then be taken of the distribution of the assessments for each criterion to make an informed professional judgement about the overall assessment of the significance of the effect.

6.44 There are no hard and fast rules about what makes a significant effect, and there cannot be a standard approach since circumstances vary with the location and context and with the type of proposal. In making a judgement about the significance of visual effects the following points should be noted:

- Effects on people who are particularly sensitive to changes in views and visual amenity are more likely to be significant.
- Effects on people at recognised and important viewpoints or from recognised scenic routes are more likely to be significant.
- Large-scale changes which introduce new, non-characteristic or discordant or intrusive elements into the view are more likely to be significant than small changes or changes involving features already present within the view.

6.45 Where visual effects are judged to be significant and adverse, proposals for preventing/avoiding, reducing, or offsetting or compensating for them (referred to as mitigation) should be described. The significant visual effects remaining after mitigation should be summarised as the final step in the process.

Further details on mitigation is provided in Paragraphs 4.21–4.43.

Summary advice on good practice

- An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity.
- Scoping should identify the area that needs to be covered in assessing visual effects, the range of people who may be affected by these effects and the related viewpoints in the study area that will need to be examined.
- The study area should be agreed with the competent authority at the outset and should cover the area from which the proposed development will potentially be visible. The emphasis must be on a reasonable approach which is proportional to the scale and nature of the proposed development.
- Baseline studies for visual effects should establish, in more detail than is possible in the scoping stage, the area in which the development may be visible, the different groups of people who may experience views of the development, the viewpoints where they will be affected and the nature of the views at those points.
- These factors are all interrelated and need to be considered in an integrated way rather than as a series of separate steps.

Interrelationships with the cultural heritage topic area need to be borne in mind when developing the visual baseline and identifying visual effects. Specialist input from cultural heritage professionals is likely to be required to interpret the range of relevant cultural heritage studies that may help to identify important viewpoints.

Areas of land from which the proposed development may potentially be visible must be identified and mapped at the outset of the assessment of visual effects.

Digitally mapped areas of visibility should be referred to as the Zone of Theoretical Visibility (ZTV), making clear that the area so defined only shows land from which the proposal may **theoretically** be visible.

Many factors other than terrain will influence actual as opposed to theoretical visibility. Site surveys are essential to provide an accurate baseline assessment of visibility.

Both ZTV mapping and site survey should assume that the observer eye height is some 1.5 to 1.7 metres above ground level, based on the midpoint of average heights for men and women.

For some types of development the visual effects of lighting may be an issue. In these cases it may be important to carry out night-time 'darkness' surveys of the existing conditions in order to assess the potential effects of lighting.

The baseline studies must identify the people within the area who will be affected by the changes in views and visual amenity – usually referred to as 'visual receptors' – and the viewpoints from which the proposal will actually be seen.

In cases where it is appropriate to consider private viewpoints from residential properties the scope of such an assessment should be agreed with the competent authority. Visual effects assessment may sometimes be carried out as part of residential amenity assessments, in which case this will supplement the normal LVIA for a project.

The viewpoints to be used should be selected in part through discussions with the competent authority and other interested parties, initially at the scoping stage but also informed by the ZTV analysis, by fieldwork and by desk research on access and recreation.

Viewpoints selected for inclusion in the assessment and for illustration of the visual effects may be chosen as representative viewpoints, specific viewpoints or illustrative viewpoints, and should cover as wide a range of situations as is reasonable and necessary to cover the likely significant effects. The emphasis must always be on proportionality in relation to the scale and nature of the development proposal.

The details of viewpoint locations should be accurately mapped and catalogued and the direction and area covered by the view recorded. The information should be sufficient for someone else to return to the exact location and record the same view.

The Landscape Institute's technical guidance on photography and photomontage in Landscape and Visual Impact Assessment should be consulted when taking baseline photographs.

The completed visual baseline should focus on information that will help to identify significant visual effects. A baseline report may combine all the key information about

visual receptors, viewpoints and views, using text, maps and annotated photographs and sketches.

Consideration of the different sources of visual effects alongside the principal visual receptors that might be affected should allow systematic identification of likely visual effects.

An informed professional judgement should be made about whether the visual effects should be categorised as positive or negative (or in some cases neutral), with the criteria used in reaching this judgement clearly stated.

The visual effects that have been identified must be assessed to determine their significance, based on the principles described in Chapter 3. This requires methodical consideration of each effect identified and, for each one, assessment of the sensitivity of the visual receptor and the magnitude of the effect on views and visual amenity.

Final judgements must be made about which visual effects are significant, as required by the Regulations. There are no hard and fast rules about what makes a significant effect, and there cannot be a standard approach since circumstances vary with the location and context and with the type of proposal.

Where visual effects are judged to be significant and adverse, proposals for preventing/avoiding, reducing, or offsetting or compensating for them (referred to as mitigation) should be described. The significant visual effects remaining after mitigation should be summarised as the final step in the process.

Chapter 7

Assessing cumulative landscape and visual effects

Chapter overview

- Scope and definitions
- What should cumulative effects include?
- Types of cumulative effect
- Assessing cumulative landscape effects
- Assessing cumulative visual effects
- Mitigating cumulative effects

Scope and definitions

7.1 Assessment of cumulative effects is required both by the EIA and the SEA Directives and by the associated Regulations. Cumulative effects have been defined in a broad generic sense as 'impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project' (Hyder, 1999: 7).

7.2 Cumulative landscape and visual effects must be considered in LVIA when it is carried out as part of EIA. The 2002 edition of these guidelines defined cumulative landscape and visual effects as those that:

> result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.
>
> (Landscape Institute and IEMA, 2002: 85)

7.3 Since this definition was published there has been particular emphasis on exploring the cumulative effects of wind farm development. This results both from the number of such schemes requiring assessment and the potentially high level of visibility of these tall structures, which means that cumulative visual effects in particular may be more likely. In Scotland considerable effort has been devoted to addressing definitions and interpretations of cumularive landscape and visual effects specifically in relation to wind farms and the resulting guidance has been used widely, and not only in Scotland. This defines:

- cumulative effects as 'the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together' (SNH, 2012: 4);
- cumulative landscape effects as effects that 'can impact on either the physical fabric or character of the landscape, or any special values attached to it' (SNH, 2012: 10);
- cumulative visual effects as effects that can be caused by combined visibility, which 'occurs where the observer is able to see two or more developments from one viewpoint' and/or sequential effects which 'occur when the observer has to move to another viewpoint to see different developments' (SNH, 2012: 11).

7.4 This is an evolving area of practice that is relevant to all forms of development and land use change, not only to wind farms. It is not appropriate to prescribe the approach

to such assessment since the issues related to cumulative effects depend on the specific characteristics of both the development proposal and the location. Those involved in assessing cumulative landscape and visual effects should ensure that they keep abreast of relevant new guidance that may emerge in telation to particular forms of development and give careful thought to an appropriate approach. Such assessments can become very substantial tasks and this makes it very important to agree the approach on a case-by-case basis, depending on the specific project. The scope of cumulative landscape and visual effects in particular must be agreed at the outset, in discussion with the competent authority and consultation bodies. The EIA co-ordinator will also need to ensure that a consistent approach is adopted across different topic areas.

7.5 The challenge is to keep the task reasonable and in proportion to the nature of the project under consideration. Common sense has an important part to play in reaching agreement about the scope of the assessment. Where the competent authority and other stakeholders are uncertain about the preferred approach the landscape professional may have to exercise judgement about what is appropriate and proportionate and be able to justify the approach taken. It is always important to remember that the emphasis in EIA is on likely significant effects rather than on comprehensive cataloguing of every conceivable effect that might occur. Carefully thinking through what significant cumulative landscape and visual effects are likely to be generated by the proposal should allow a sensible decision to be reached at the scoping stage.

What should cumulative effects include?

7.6 Although the broad definitions above, of cumulative effects in general and cumulative landscape and visual effects in particular, are widely adopted, there are different interpretations of what should be included in a cumulative effects assessment. The EIA Regulations require that in describing the aspects likely to be significantly affected by a development, consideration should be given to the interrelationships between the different environmental factors. In EIA practice these potentially quite complex interrelationships are increasingly being examined as part of the assessment of cumulative effects. They are then dealt with under the heading of within-project (or intra-project) cumulative effects.[1]

7.7 Where this interpretation is applied in an EIA, those conducting the LVIA may need to consider possible links between landscape and visual effects and effects identified in other topic areas – for example relationships between noise effects and visual effects, both of which may be related to the line of sight between source and receptor, or the effects of features created by hydrology mirigation measures on landscape character. But landscape professionals are unlikely to have to carry out a comprehensive assessment of this type of within-project cumulative effect unless also acting as the EIA co-ordinator.

7.8 Of greater importance for LVIA are the cumulative landscape and visual effects that may result from an individual project that is being assessed interacting with the effects of other proposed developments in the area. These are often referred to in EIA practice as inter-project or between-project cumulative effects. Dealing with them requires decisions about what other proposals should be included. The two key questions are:

1. What types of cumulative effect should be considered – should they be only those from projects of the same type as the main project under consideration or include those from other types of development in the vicinity?
2. What past, present or future proposals should be considered, either for the same or different types of development?

What types of development should be included?

7.9 Cumulative effects assessment can be relevant to any form of development. In order to ensure a proportional response to the particular development proposal under consideration agreement should be reached in the scoping stage, through discussion with the competent authority and consultation bodies and judgement by the assessor, on the scope of the cumulative effects assessment.

7.10 In most cases the focus of the cumulative assessment will be on the additional effect of the project in conjunction with other developments of the same type (as, for example, in the case of wind farms; see SNH, 2012). In some cases, development of another type or types will be relevant and may help to give a more complete picture of the likely significant cumulative effects. For example, previous or planned road improvements or developments such as energy-from-waste facilities are likely to be relevant 'other developments' when assessing cumulative effects in relation to a major urban extension.

7.11 The requirement for consideration of cumulative landscape and visual effects is a matter for agreement at the scoping stage of the assessment but could relate to one or a combination of:

- other examples of the same type of development;
- other types of development proposed within the study area, including those that may arise as an indirect consequence of the main project under consideration;
- in the case of large, complex projects, different scheme components or associated and ancillary development that in some cases may require their own planning consent.[2]

7.12 In consultation with the competent authority (who in turn may liaise with other consultation bodies) it is also necessary to agree the geographic extent (or study area) over which the cumulative effects will be assessed.[3] The work involved in assessing cumulative effects will require the use of information supplied by the competent authority and consultation bodies about other schemes being considered in the cumulative assessment, especially those still in the consenting system. As discussed in Paragraph 7.5, agreement between all parties on the extent of such work should consider what is reasonable and proportional in the circumstances.

Timescale of proposals for inclusion

7.13 This section sets out how development proposals at different stages in the planning process, whether of the same or different types, should be treated in assessing cumulative landscape and visual effects. Taking 'the project' to mean the main proposal that is being assessed, it is considered that existing schemes and those which are under construction should be included in the baseline for both landscape and visual effects

assessments (the LVIA baseline). The baseline for assessing cumulative landscape and visual effects should then include those schemes considered in the LVIA and in addition potential schemes that are not yet present in the landscape but are at various stages in the development and consenting process:

- schemes with planning consent;
- schemes that are the subject of a valid planning application that has not yet been determined.

7.14 Schemes that are at the pre-planning or scoping stage are not generally considered in the assessment of cumulative effects because firm information on which to base the assessment is not available and because of uncertainty about what will actually occur, that is, it is not 'reasonably foreseeable'. But there may be occasions where such schemes may be included in the assessment if the competent authority or consultation bodies consider this to be necessary. Such a request should only be made if absolutely necessary to make a realistic assessment of potential cumulative effects. It should be noted that in England and Wales guidance from the Planning Inspectorate explicitly indicates that nationally significant infrastructure applications should consider this aspect in scoping their cumulative effects (Planning Inspectorate, 2012).

7.15 The baseline for the LVIA itself will include evidence about change that may affect the landscape in the future (as described in Paragraph 5.18). There may therefore be some degree of overlap with the baseline for the cumulative effects assessment. The key is to ensure that the assessment is true to the spirit of the generic definition of cumulative effects in dealing with 'other past, present or reasonably foreseeable actions' but that it is again proportional and reasonable and focuses on likely significant effects.

7.16 There is no doubt that stakeholders, including local communities, will not draw artificial distinctions between what already exists or is under construction and is therefore part of the LVIA baseline, and what may happen as a result of schemes that may be implemented in the future. They will be concerned about the totality of the cumulative effect of past, present and future proposals. Those assessing these effects should reflect these concerns as realistically as possible while still keeping the task to a manageable scale. EIA co-ordinators will ultimately need to ensure that a consistent approach is adopted throughout the EIA and that the assessment of cumulative landscape and visual effects is in line with this. To re-emphasise the point made in Paragraph 7.5, the key for all cumulative impact assessments is to focus on the likely significant effects and in particular those likely to influence decision making.

Types of cumulative effect

7.17 There are many different types of cumulative landscape and visual effect that may need to be considered. They can include:

- the effects of an extension to an existing development or the positioning of a new development such that it extends or intensifies the landscape and/or visual effects of the first development;

- the 'filling' of an area with either the same or different types of development over time, such that it may be judged to have substantially altered the landscape resource and views or visual amenity;
- the interactions between different types of development, each of which may have different landscape and/or visual effects and where the total effect is greater than the sum of the parts;
- incremental change as a result of successive individual developments such that the combined landscape and/or visual effect is significant even though the individual effects may not be;
- temporal effects, referring to the cumulative impacts of simultaneous and/or successive projects that may affect communities and localities over an extended period of time;
- effects of development which have indirect effects on other development, either by enabling it – for example a road development enabling new warehouses to be constructed at a roundabout – or disabling it – for example by sterilising land; both may in turn have landscape and/or visual effects;
- landscape and/or visual effects resulting from a future action that removes something from the existing landscape which may have consequences for other existing or proposed development – for example an existing woodland may be felled or a building removed, and this in turn may reveal views of existing or proposed developments that would otherwise remain screened.

7.18 Agreement should also be reached about whether the cumulative effects assessment is to focus primarily on the additional effects of the main project under consideration, or on the combined effects of all the past, present and future proposals together with the new project. Some of those involved may tend to favour a limited view focused on the additional effects of the project being assessed, on top of the cumulative baseline. Some stakeholders may however be more interested in the combined effects of all the past, current and future proposals, including the proposed scheme. Again discussion will be needed at the scoping stage with the competent authority and the consultation bodies about what can reasonably be expected, especially as assessing combined effects involving a range of different proposals at different stages in the planning process can be very complex. Furthermore the assessor will not have assessed the other schemes and cannot therefore make a fully informed judgement. A more comprehensive overview of the cumulative effects must rest with the competent authority.

Assessing cumulative landscape effects

7.19 Cumulative landscape effects may result from adding new types of change or from increasing or extending the effects of the main project when it is considered in isolation. For example, the landscape effects of the main project may be judged of relatively low significance when taken on their own, but when taken together with the effects of other schemes, usually of the same type, the cumulative landscape effects may become more significant.

Defining a study area

7.20 As with other aspects of cumulative effects, it will be important to agree with the competent authority and other stakeholders both the approach to defining a study area

and the resulting proposed study area. The approach must be reasonable and proportional in order to keep the task manageable and ensure that the focus is on cumulative landscape effects that are likely to be significant.

There are three practical approaches: 7.21

1. Since the concern is with the accumulation of effects on landscape character and the components that contribute to it, the most logical way to define a study area may be to use the boundaries of the Landscape Character Type(s) or area(s), or some equivalent area, that the proposal sits within. This allows judgements about when the cumulative landscape effects of the main project together with other developments become such as to change the landscape character in the area to a significantly different character, perhaps sufficient to create a new landscape type or sub-type.
2. Another approach is to use the Zone of Theoretical Visibility (ZTV) defined in assessing the visual effects of the scheme itself and the areas of overlap with the ZTVs defined for the cumulative visual effects assessment. This is likely to be particularly useful when the development in question may be seen in conjunction with other developments in the vicinity and so may influence landscape character, even if the other projects are not in the same character area. In this case a combination of the two methods may be most appropriate.
3. A study area may be suggested by the competent authority and/or stakeholders based on one or both of the two approaches above, or on other local considerations, including views expressed to the competent authority by local groups, and supported by clear justification.

Establishing the baseline for cumulative landscape effects

The baseline information for the assessment will usually start from the baseline for the main project being assessed but this may need to be modified, in terms of both the extent of the area covered and the content, to allow for the inclusion of other schemes. The process will be the same as that described in Chapter 5. For reasons of economy and efficiency maximum use will need to be made of existing Landscape Character Assessments but, importantly, new surveys may be needed if existing ones do not meet the specific needs of the assessment of cumulative effects. 7.22

If new surveys should be needed to cover the wider study area for cumulative effects, they should follow the same procedures as the baseline survey for the main project being assessed. The result should be a clear, well-structured and accessible account of the landscape of the wider study area, covering its character, any division of the landscape into character types or areas, and identification of key characteristics that give each landscape its distinctive character. 7.23

See Chapter 5 for details of baseline studies for landscape effects assessment.

The baseline survey should also identify designated landscapes in the study area, whether at international, national, regional or, where appropriate, local levels. Where 7.24

there are no designations an assessment should be made of the value attached to the landscape using the same methods as for the main project assessment.

See Chapter 5 for details of how to assess the value of landscapes where no formal designation exists.

Identifying the landscape effects and assessing their significance

7.25 Once the range of developments to be considered and the extent of the study area have been agreed and the landscape baseline established, a map and inventory of all the relevant projects to be considered should be prepared. Enough must be known about the nature of the other projects to allow their landscape effects to be predicted and described. This will allow the effects of the main proposal being assessed to be set alongside these of the additional projecrs and the cumulative effects identified. Cumulative landscape effects, either additional or combined as agreed in scoping, are likely to include effects:

- on the fabric of the landscape as a result of removal of or changes in individual elements or features of the landscape and/or the introduction of new elements or features;
- on the aesthetic aspects of the landscape – for example its scale, sense of enclosure, diversity, pattern and colour, and/or on its perceptual or experiential attributes, such as a sense of naturalness, remoteness or tranquillity;
- on the overall character of the landscape as a result of changes in the landscape fabric and/or in aesthetic or perceptual aspects, leading to modification of key characteristics and possible creation of new landscape character if the changes are substantial enough.

7.26 The cumulative landscape effects (as with the landscape effects of the principal scheme under consideration) must be considered particularly in terms of consequences for the key characteristics of the landscape in question. Judgements must be made about the compatibility of the proposals being considered with the existing characteristics of the landscape – for example irs scale and pattern – and whether or not the character of the landscape is changed to such an extent that it becomes a new landscape type or sub-type.

7.27 In order ro keep the task of assessing cumulative landscape effects to a reasonable and manageable scale the prediction of effects and assessment of their significance should ideally progress in parallel so that it is clear that the emphasis will always be on the most significant effects. The approach to assessing the significance of cumulative landscape effects should be guided by the same principles as the approach to the initial project assessment. It should consider:

- the susceptibility of the landscape receptor to the type of change under consideration; for cumulative landscape effects it is possible that existing landscape sensitivity studies that cover the study area could provide useful preliminary information, but

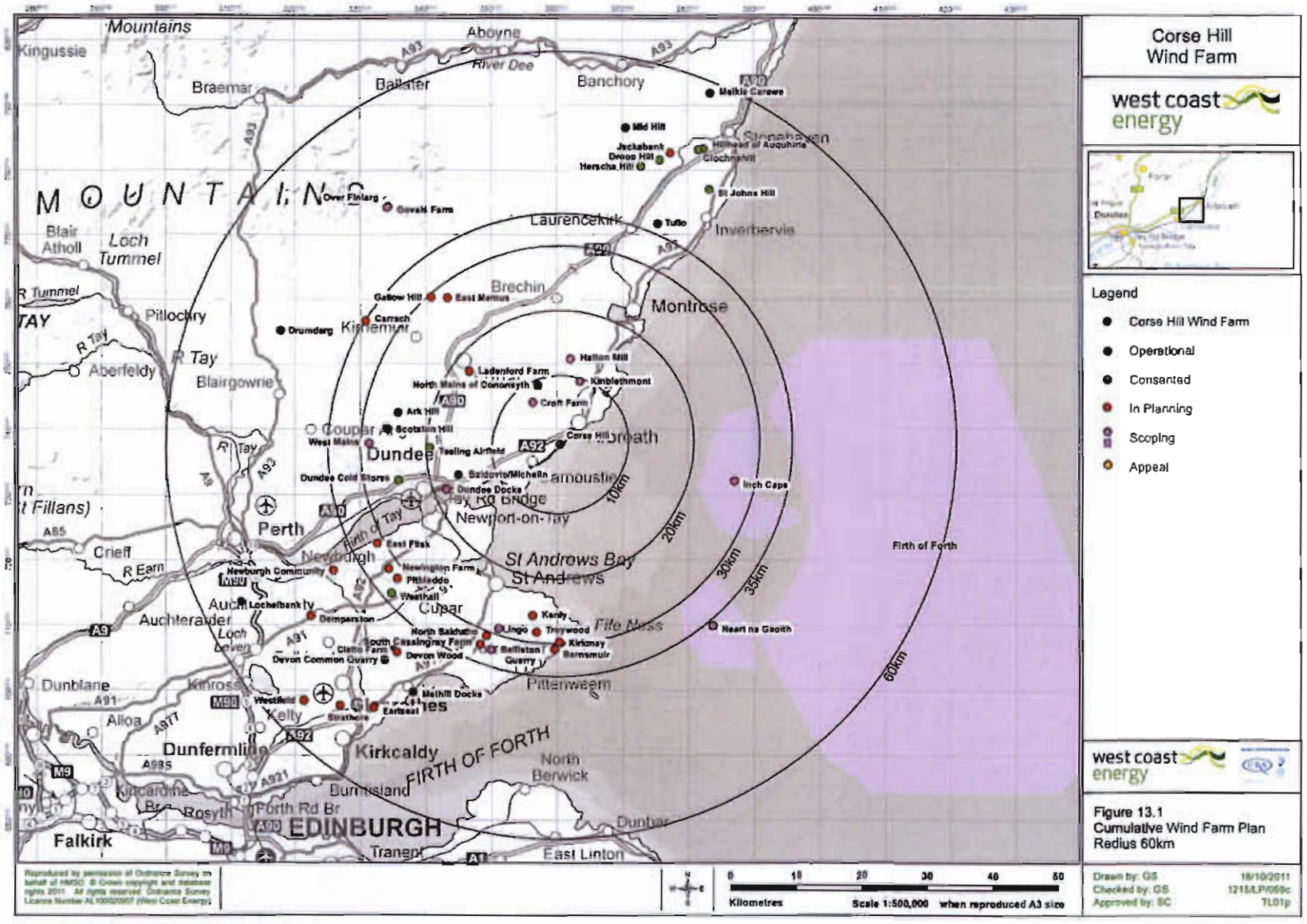


Figure 7.1A Preliminary cumulative landscape and visual effects study area for a wind farm

Figure 7.1B Second-stage cumulative landscape and visual effects study area for a wind farm

only if they cover the specific type of development included in the cumulative effects assessment and the specific location in question;
- the value attached to the receptor under consideration, reflecting in particular its designation status, including internationally recognised and nationally designated landscapes, locally designated landscapes and other valued components of the landscape;
- the size or scale of the cumulative landscape effects identified;
- the extent of the geographical area covered by the cumulative landscape effects identified;
- the duration of the cumulative landscape effects, including the timescales relating to both the project being assessed and the other projects being considered, and the extent to which the cumulative effects may be considered reversible.

7.28 The most significant cumulative landscape effects are likely to be those that would give rise to changes in the landscape character of the study area of such an extent as to have major effects on its key characteristics and even, in some cases, to transform it into a different landscape type. This may be the case where the project being considered itself tips the balance through its additional effects. The emphasis must always remain on the main project being assessed and how or whether it adds to or combines with the others being considered to create a significant cumulative effect.

Assessing cumulative visual effects

7.29 Cumulative visual effects are the effects on views and visual amenity enjoyed by people, which may result either from adding the effects of the project being assessed to the effects of the other projects on the baseline conditions or from their combined effect. This may result from changes in the content and character of the views experienced in particular places due to introduction of new elements or removal of or damage to existing ones.

Defining a study area

7.30 The study area for identifying potential cumulative visual effects may be defined by creating ZTVs (see Paragraphs 6.8–6.12) for each project that has been identified for inclusion. In theory, in those areas where the ZTVs overlap, people at identified viewpoints may be able to see one or more of the developments and will therefore potentially experience cumulative visual effects. Actual visibility does, however, depend upon a variety of factors, which can include topography, aspect, tree cover, buildings or other visual obstructions, elevation, direction and distance of view, and weather and light conditions.

7.31 The initial study area may include all the overlapping ZTVs of all the relevant projects. This approach has been particularly important in assessing wind farms, which can be visible over considerable distances (see Figures 7.1A and 7.1B), and so the study areas for cumulative effects can be very extensive. This may not necessarily be the case for other types of development.

7.32 The distance between the visual receptors or viewpoints and the various projects does influence the magnitude of the cumulative visual effects and so feeds into judgements

of their significance. Depending on the type of development it may be considered that more distant views are not likely to be significant and the study area can be reduced accordingly. As with cumulative landscape effects, common sense must prevail in deciding on the extent of study area that is appropriate and discussion with the competent authority and consultation bodies should assist in agreeing a reasonable area to be covered.

Establishing the baseline for cumulative visual effects

7.33 The starting point for the description of the visual baseline is likely to be the same as for the visual effects assessment of the main project being considered, although amendments may be needed as the assessment develops. Assuming that relevant visual receptors and viewpoints have been identified and used in defining the study area, the baseline should consider:

- the people likely to be affected at each location, the activity they are involved in (and therefore their susceptibility to changes in views and visual amenity) and the number, if this information is available, or relative number (as in Paragraph 6.15), of those involved;
- the extent, nature and characteristics of the views and visual amenity enjoyed by those people at those viewpoints.

Identifying the visual effects and assessing their significance

7.34 As a number of separate developments must be considered, there is interest in the way in which they may be experienced. This is particularly relevant for wind farm cumulative visual effects assessment (see Table 7.1). At one viewpoint someone looking at the view in one direction may see all the projects at the same time, or someone turning through the whole 360 degrees may see different developments in different directions and sectors of the view in succession. Users of linear routes, especially footpaths or other rights of way, or transport routes, may potentially see the different developments revealed in succession as a series of sequential views. Both types of experience need to be considered where they are relevant.

7.35 Each view must be recorded and described at each selected viewpoint and also for the sequential views experienced on important linear routes, making clear the nature of the views of all the developments selected for inclusion in the assessment and the contribution of the project being assessed. Where the projects have yet to be constructed and may not even be fully designed, a judgement will have to be made about their appearance, making clear any assumptions made or information used.

7.36 The most significant cumulative visual effects may need to be illustrated by visualisations to indicate the change in views and visual amenity compared with the appearance of the project being assessed on its own. The visual receptors will already have been identified and categorised in terms of their importance and sensitivity to change and these assessments will be unchanged unless new ones have been added specifically for the cumulative effects assessment. The magnitude of the visual effects may, however, be altered by the addition of other developments and judgements must be made about this. Thought must also be given to the way in which any sequential views will be

Table 7.1 Types of cumulative visual effect (summary based on SNH, 2012)

Generic	*Specific*	*Characteristics*
Combined		
Occurs where the observer is able to see two or more developments from one viewpoint.	In combination	Where two or more developments are or would be within the observer's arc of vision at the same time without moving her/his head.
	In succession	Where the observer has to turn her/his head to see the various developments – actual and visualised.
Sequential		
Occurs when the observer has to move to another viewpoint to see the same or different developments. Sequential effects may be assessed for travel along regularly used routes such as major roads or popular paths.	Frequently sequential	Where the features appear regularly and with short time lapses between instances depending on speed of travel and distance between the viewpoints.
	Occasionally sequential	Where longer time lapses between appearances would occur because the observer is moving very slowly and/or there are larger distances between the viewpoints.

experienced, including the duration of views of other developments in combination with the project.

The approach to assessing the significance of cumulative visual effects should be guided by the same principles as the approach to the initial project assessment as set out in Chapter 6. It should consider the following criteria: 7.37

- the susceptibility of the visual receptors that have been assessed to changes in views and visual amenity;
- the value attached to the views they experience;
- the size or scale of the cumulative visual effects identified;
- the geographical extent of the cumulative visual effects identified;
- the duration of the cumulative visual effects, including the timescales relating to both the project being assessed and the other projects being considered, and the extent to which the cumulative effects may be considered reversible.

7.38 Higher levels of significance may arise from cumulative visual effects related to:

- developments that are in close proximity to the main project and are clearly visible together in views from the selected viewpoints;
- developments that are highly inter-visible, with overlapping ZTVs – even though the individual developments may be at some distance from the main project and from individual viewpoints, and when viewed individually not particularly significant, the overall combined cumulative effect on a viewer at a particular viewpoint may be more significant.

Mitigating cumulative effects

7.39 In accordance with the Regulations mitigation of significant adverse cumulative landscape and visual effects needs to be considered. However, the possible actions that might be taken to mitigate such effects are somewhat different from mitigation measures to address effects identified through the standard process of LVIA. As these effects arise from a number of different developments they cannot necessarily be addressed by measures related only to the main project being considered.

7.40 There may be some scope for reducing cumulative effects through changes to the main project being considered, for example by considering appropriate siting, by changing the scheme layout or by more conventional use of planting or screening in order to avoid or reduce its contribution to the cumulative effects. However, depending on the type of project, such traditional approaches may only work for cumulative visual effects in certain circumstances and for certain visual receptors.

7.41 Beyond this, wider concerns about cumulative effects may need to be addressed through measures such as:

- partnership working between developers, the consenting authority and statutory bodies to produce an agreed package of solutions;
- community compensation/offset packages, which may be linked to partnership working;
- consenting authority action, where the cumulative landscape and/or visual effects of the proposal combined with the cumulative baseline lead to a need for the consenting authority to take broader action, such as implementing an overarching mitigation programme or amending planning policies based on their judgement that the effects on receptors have reached or passed an acceptable threshold.

Summary advice on good practice

- Cumulative landscape and visual effects must be considered in LVIA when it is carried out as part of EIA.
- As this is an evolving area of practice those involved in assessing cumulative landscape and visual effects should ensure that they keep abreast of relevant new guidance that may emerge for particular forms of development.

The scope of cumulative landscape and visual effects must be agreed at the outset in discussion with the competent authority and consultation bodies.

As the emphasis is on **likely significant** effects, careful thought should be given to what significant cumulative landscape and visual effects are likely to be generated. This should allow a sensible decision to be reached at the scoping stage, so that the task is **reasonable and in proportion** to the nature of the project under consideration.

In EIA practice interrelationships between different environmental factors are increasingly being examined under the heading of within-project (or intra-project) cumulative effects, and those conducting an LVIA may need to consider possible links between landscape and visual effects and effects identified in other topic areas.

However, between-project (or inter-project) cumulative effects are usually of greater importance for LVIA and dealing with them requires decisions about what other projects or proposals should be included.

The scoping stage of the assessment should determine whether a cumulative effects assessment should consider other examples of the same type of development and/or other types of development proposed within the study area, including those that may arise as an indirect consequence of the main project under consideration, and/or, in the case of large, complex projects, different scheme components or associated and ancillary development that in some cases may require their own planning consent.

In terms of the timescale of proposals for inclusion, existing schemes and those under construction should be included in the baseline for both landscape and visual effects assessment (the LVIA baseline).

The baseline for assessing cumulative landscape and visual effects should include those schemes and in addition potential schemes that are not yet present in the landscape but are at various stages in the development and consenting process, including schemes with planning consent and schemes that are the subject of a valid planning application that has not yet been determined.

Schemes that are at the pre-planning or scoping stage are not generally considered in the assessment of cumulative effects because of lack of certainty, but there may be occasions where such schemes may be included if the competent authority or consultation bodies consider this to be necessary.

Decisions about what projects to include should consider what is reasonable and proportional in the circumstances but also try to anticipate concerns that may be raised by the public about cumulative effects.

Cumulative landscape effects may result from adding new types of change or by increasing or extending the effects of the main project when it is considered in isolation. The key for all cumulative impact assessments is to focus on the **likely significant** effects and in particular those likely to influence decision making.

A study area for cumulative landscape effects can be defined by using: the boundaries of the Landscape Character Type(s) or Area(s), or equivalent, that the project sits within; or the ZTV defined in assessing the visual effects of the scheme itself and areas of overlap with the ZTVs of projects defined for the cumulative visual effects assessment; or an area suggested by the competent authority and/or stakeholders.

Cumulative landscape effects must be considered particularly in terms of consequences for the key characteristics of the landscape in question.

The most significant cumulative landscape effects are likely to be those that would give rise to changes in the landscape character of the study area so as to result in significant effects on its key characteristics and even, in some cases, to transform it into a different landscape type.

The study area for identifying potential cumulative visual effects may include the overlapping ZTVs for all of the relevant projects to be considered.

The starting point for description of the visual baseline is likely to be the same as for the visual effects assessment of the main project being considered, although amendments may be needed as the assessment develops.

The view must be recorded and described at each selected viewpoint and also for the sequential views experienced on important linear routes, making clear the nature of the views of all the developments selected for inclusion in the assessment and the contribution of the project being assessed.

Where the projects have yet to be constructed and may not even be fully designed, a judgement will have to be reached about their appearance, making clear any assumptions made or information used.

The most significant cumulative visual effects may need to be illustrated by visualisations to indicate the changing views and visual amenity compared with the appearance of the project being assessed on its own.

The approach to assessing the significance of cumulative landscape and visual effects should be guided by the same principles as those for the assessment of the landscape and visual effects of the project itself.

Mitigation of significant adverse cumulative landscape and visual effects needs to be considered but cannot necessarily be addressed by measures related only to the individual project being considered. Consideration may need to be given to partnership working, to community offset/compensation packages and to consenting authority action, such as implementing an overarching mitigation programme or amending planning policies.

Chapter 8

Presenting information on landscape and visual effects

Chapter overview

- Introduction
- Structure and content of a landscape and visual impact report
- Presenting information on landscape and visual effects
- Review of the landscape and visual effects content of an Environmental Statement

Introduction

8.1 This chapter provides information on presentation techniques that may be used to communicate the results of landscape and visual assessments. The same broad principles apply where LVIA is carried out as:

- part of an EIA, and presented in a similar way to other environmental topics – landscape and visual effects usually appear either as separate or combined sections of the Environmental Statement;
- a standalone 'appraisal' presented as a separate report to accompany a planning application – this will contain the same type of information as for an EIA but at a level of detail which is appropriate to the scale and nature of the proposed development.

Where LVIA is undertaken as part of an EIA the approach to presentation should be discussed with the EIA co-ordinator to ensure the content included in the main text of the Environmental Statement is proportionate and appropriate to the significance of the findings of the LVIA.

8.2 Whether the LVIA is part of an Environmental Statement or a standalone document the presentation techniques must be carefully chosen and appropriately applied. These documents are generally subject to close scrutiny and may need to be explained and substantiated at a public inquiry. On the other hand the effort required to produce appropriate illustrative material, especially visualisations to show the proposed changes, must be kept in proportion to the nature of the proposed development. Landscape appraisals of smaller projects are unlikely to merit the same level of technical visualisation as larger projects subject to EIA. The approach to presentation and the level of sophistication required in the illustration of change should be discussed and agreed with the competent authority at the outset. Final production of an Environmental Statement should bear in mind the needs of those who will wish to read it, ensuring:

- ease of dissemination, which may favour electronic rather than paper copies for some audiences;
- ease of reference by thoughtful naming of files;
- appropriate font size and graphics to enable reading on screen; and
- attention to file sizes to aid access to illustrations, while still maintaining legibility.

Structure and content of a landscape and visual impact report

8.3 The structure and content of a report on the assessment of landscape and visual effects will follow a broadly similar pattern in each case, but there will be variations reflecting, for example, the scope of work agreed with the competent authority and consultees and the likely significance of the landscape and visual resources affected. In an EIA, agreement will be needed on how cumulative landscape and visual effects are to be covered – either as part of a separate cumulative effects section of the Environmental Statement or as a sub-section of the chapters dealing specifically with landscape and visual effects.

8.4 In view of the clear differences between landscape effects and visual effects and the potential for them to be confused, it is good practice to report on them separately. They may either be coveted in two separate chapters of the Environmental Statement or in two clearly distinguished parts of the same chapter. The choice will depend on the complexity of the proposal and the issues that it raises. Relevant appendices, maps and illustrations should also be similarly distinguished. Care should be taken to ensure that the baseline information relevant to both landscape and visual effects is not separated too much from the identification and description of effects. In complex EIAs this can easily happen if the EIA co-ordinator decides that baseline conditions will be separately reported for all topics in the Environmental Statement. Placing the baseline description together with the assessment of the effects is usually more effective in allowing the chain of reasoning from the baseline to the effects assessment to be demonstrated.

8.5 In an Environmental Statement the structure of reporting should ideally be consistent across the environmental topics, covering the baseline conditions, description of the predicted effects, proposed mitigation and assessment of the significance of the effects. Reporting may reflect relationships between topics, for example placing cultural heritage and ecology topics relating to historic and natural dimensions of the landscape next to the landscape topic, since they are closely related to each other. Reporting may also reflect the relative significance of effects, for example by placing the LVIA before topics such as cultural heritage and ecology, where landscape and visual effects are seen as the key issues. Text should also make clear the nature of these and other inter-relationships and provide appropriate cross references.

8.6 The opening sections of any report on an LVIA should present basic information on matters such as objectives, responsibilities and methodology. In an EIA some of these topics will be common to the whole EIA and should be reported on in one place. Those specific to the LVIA, which may need to be reported separately, include:

- the planning and legal context relevant to landscape and visual matters, including planning policies and guidance dealing with relevant landscape matters, such as landscape designations and any relevant landscape strategies;
- the remit of those responsible for preparing the assessment;
- the scope of the assessment agreed with the competent authority and consultation bodies, including for example study areas, key landscape and visual issues, any issues omitted by agreement from the full assessment, agreed landscape and visual

receptors, selection of viewpoints, and the scope of and approach to the cumulative landscape and visual effects assessment;
- the methods used, including any specific landscape and visual assessment techniques and the approach to assessing significance;
- practical constraints encountered in carrying out the work, assumptions made and any data deficiencies that have been encountered, as required by the EIA Regulations.

8.7 The chapter(s) of the Environmental Statement dealing with landscape and visual effects, or the separate LVIA report, should contain:

- a clear description of any components of the proposed development that are of particular relevance to the assessment of landscape and visual effects;
- an explanation of how landscape and visual considerations contributed to the evolution of the scheme's design.

8.8 Landscape effects and visual effects should be covered separately and, in each case, reporting should include:

- description of the baseline conditions relevant to that topic, although if baseline information for all topics is in one chapter, the LVIA chapter should provide a summary of the key relevant findings;
- systematic identification and descriprion of the potentially significant effects that are likely to occur;
- transparent and clearly explained assessment of the significance of the effects;
- description of further measures, in addition to those already incorporated into the scheme, designed to reduce significant adverse effects or to offset or compensate for them;
- explanation of the way that any measures included as part of the mitigation package will actually be delivered in practice, including reference to any need for monitoring;
- a summary of the significant effects remaining after mitigation.

Presenting information on landscape and visual effects

8.9 The choice of appropriate presentation techniques is crucial to good communication. Much of the detailed material about landscape and visual effects will be presented as written text supported by maps, illustrations and photographs. Writing should be comprehensive, covering all the material assembled in the assessment, but also concise and to the point and written in plain, easy-to-understand language. Above all it should be impartial and dispassionate, presenting information and reasoning accurately and in a balanced way and making clear where statements are based on the author's judgement. Clear and, as far as possible, standard definitions should be provided for any technical terms that are used, supported by a glossary of terms.

8.10 Tables and matrices, if used and described correctly, can be effective in complementing the text, providing a useful summary of important information. They can assist with comparisons, for example between different scheme options and types of effect, which can be especially valuable in the early stages of planning and design. They can also be a useful way of making potentially large volumes of complex information more readily accessible to the competent authority charged with making a decision, to consultees

and also to the public. Such tables must be carefully and consistently prepared, as decision makers may rely on them to provide a summary of the landscape and visual effects. It should, however, be stressed that these tables, and any matrices related to judgements of significance, should be used to support and to summarise narrative descriptive text, rather than to replace it.

See Paragraphs 3.30–3.36 for discussion of using tables and matrices in presenting assessments of significance.

8.11 Provided that they are well thought out, illustrations can often communicate information more quickly and easily than text. They can have an especially important role in relation to landscape and visual effects. Much essential landscape and visual information can be communicated through well-designed maps and plans, and appropriate photographs and other illustrative material. Text and illustrations need to work well together, with each complementing and supporting the other. Illustrations should be relevant to and support the text, which should cross-refer to them so readers can relate the text to the illustration or look to the illustration to help them understand what is being said in the text. Illustrations should support rather than duplicate the content of the text.

8.12 Illustrations, whatever their form, should have a specific purpose. They should be designed to provide information of clear relevance to the assessment and to aid communication. The amount and type of illustrative material should be in proportion to the task in hand and should be agreed in consultation with the competent authority. It is important to show as realistically as possible how the development will appear both in relation to the surrounding landscape and from specific viewpoints from which it will be seen by particular groups of people. There may be specific guidance on what the competent authority expects by way of illustrations in an Environmental Statement, which applies in particular administrative areas and/or to particular types of development. This should also guide the approach.

Map information

8.13 Maps and plans, at suitable scales and levels of detail, should be prepared using appropriate digital and manual methods and included in the Environmental Statement. They should illustrate key spatial aspects of the LVIA, including:

- the precise location and nature of the proposal, including information about phasing and any associated development in other locations;
- the landscape character of the area, including landscape types or areas that have been identified and, where appropriate, the distribution of important individual elements of the landscape that may be affected by the proposed development;
- evidence about the value attached to the landscape, including the boundaries of any relevant national, local or other designations;
- the agreed extent of the Zone of Theoretical Visibility (or equivalent) of the proposed development, at an appropriate scale and printed on an appropriate sheet

size to allow for ease of reference. The accompanying text should include details of how the ZTV has been constructed including, as necessary and appropriate:

- details of the topographic data source and its accuracy;
- confirmation of whether or not it is based on bare ground survey or whether other land use data has been included;
- confirmation as to whether earth curvature and refraction of light have been taken into account;
- details of viewer eye height used to calculate the ZTV;

- the location of selected viewpoints used to assess visual effects;
- distance zones indicating how far these viewpoints and different parts of the ZTV are from the proposed location of the project;
- maps showing accurately the detailed location, direction of view and angle of view for each of the viewpoints, to be read in conjunction with the photographs and photomontages from these viewpoints;
- in the case of cumulative effects, the location of the other developments included in the assessment, the location of relevant receptors, and the extent of associated ZTVs.

8.14 Geographical Information Systems (GIS) and related software can be especially useful in analysing and presenting information relevant to both the landscape and the visual baselines. These tools allow layers of data on a variety of topics to be collated, sieved, superimposed and incorporated in various ways into the Environmental Statement. Where it is relevant, this can be particularly useful in analysing and presenting relationships between baseline data on topics such as topography, soils, hydrology, vegetation and habitats, population and settlement patterns, transport networks, land use, and historical and cultural features, as well as their interactions that create landscape character.

Photographs and visualisations

8.15 Photographs can have an important role to play in communicating information about the landscape and visual effects of a proposed development, although it is acknowledged that they cannot convey exactly the way that the effects would appear on site. In dealing with landscape effects photographs should be included in the Environmental Statement to illustrate the landscape character of the site and its context. It is not possible to include photographs of every part of every different landscape and so photographs should be selected to illustrate a representative range of Landscape Character Types or Areas, and some of their important key characteristics. When incorporating photographs the following points should be considered:

- The locations from which the photographs are taken should be carefully chosen, in discussion with the competent authority.
- Prevailing weather and atmospheric conditions and effects on visibility should normally be described, ideally using consistent Meteorological Office terminology,[1] and any effects of the conditions on the photographs should be noted.
- Seasonal effects on the photographs and the landscape they are illustrating are important and should be noted.
- Technical aspects of the photography, including lens type and focal length, should

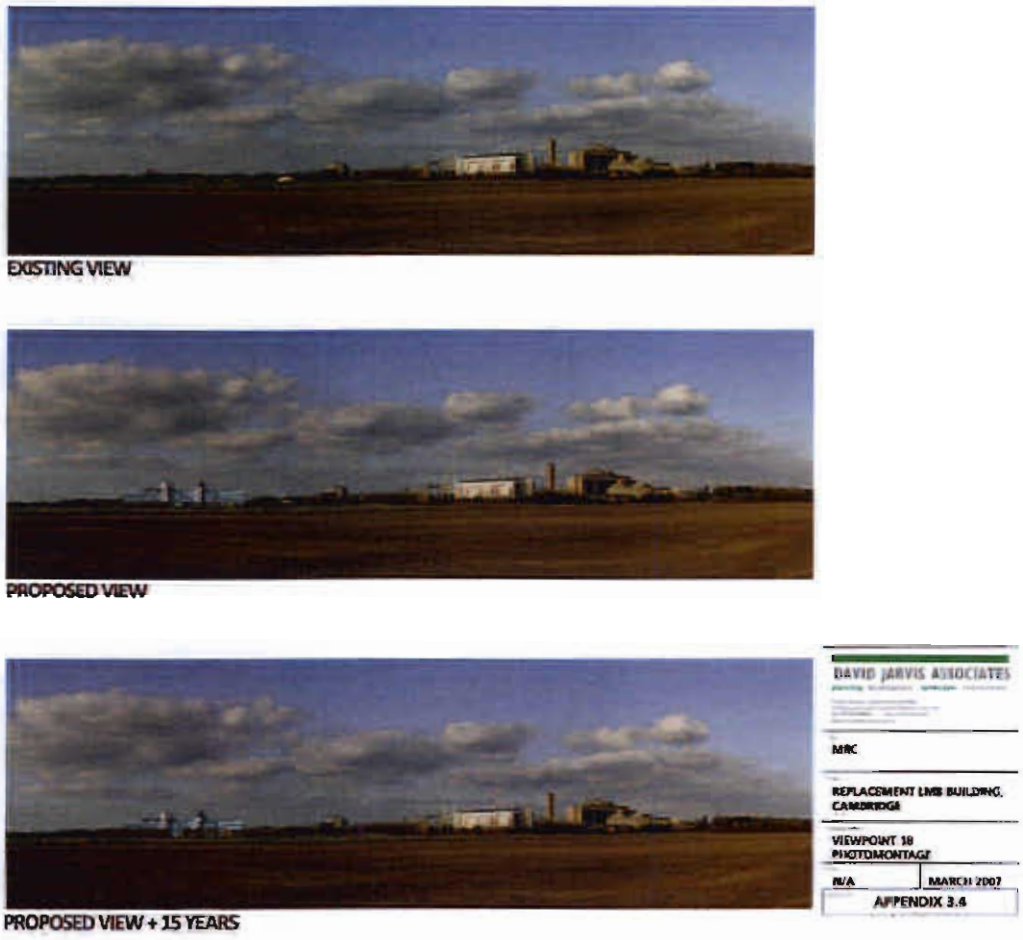


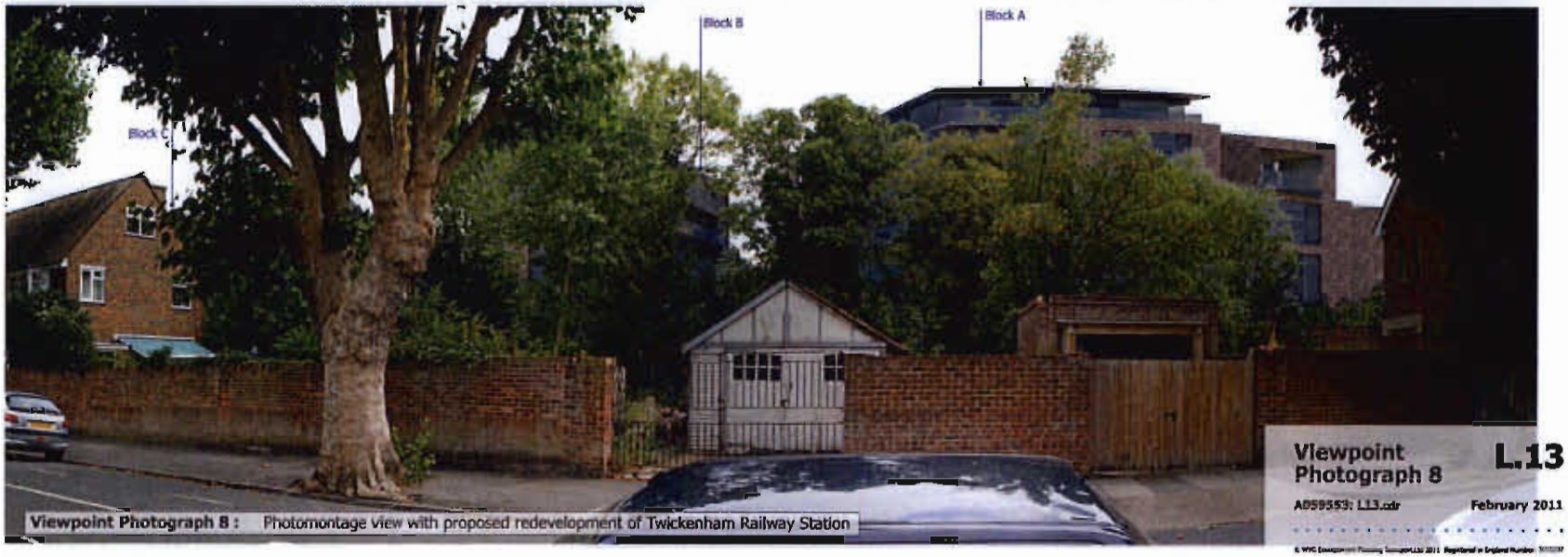
Figure 8.1 Photomontage of a new building near the urban edge showing its appearance from a viewpoint in the surrounding landscape after one year and after fifteen years (extract)

be stated with reasons given for the choices made. For further details see the Landscape Institute's technical note on photography (Landscape Institute, 2011).

8.16 Photographs should be used in the baseline for the visual effects assessment to illustrate existing views and visual amenity at agreed viewpoints. The predicted changes must be described in the text but should also be illustrated by means of visualisations showing, from representative viewpoints, how the changes in views will appear. It will not usually be possible to prepare visualisations for every viewpoint that has been identified and there will need to be discussions with the competent authority and consultation bodies to ensure that an appropriate number and range of viewpoints is used, allowing the significant visual effects to be illustrated at a range of representative locations covering the types of visual receptor.

8.17 Since the second edition of this guidance was published there have been great developments in digital technology, providing a range of options including both two-dimensional (2D) and three-dimensional (3D) approaches. Many different factors need

Viewpoint Photograph 8 : View south from between 2b and 2c Cole Park Road (July 2010)



Viewpoint Photograph 8 : Photomontage view with proposed redevelopment of Twickenham Railway Station

Viewpoint Photograph 8 **L.13**

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Figure 8.2A–B Photomontages illustrating the effects of seasonal change on the visibility of proposed buildings

Table 8.1 Choosing appropriate illustrative techniques

Step 1	Discuss the project with the client and the competent authority to work out what is required for illustration of the assessment, taking account of the audience. Consider the type of graphics and presentation likely to be most appropriate for the proposed development, taking account of the scale and complexity of the proposal and taking steps to ensure that the approach is proportionate – there is little advantage in using advanced techniques if a simple thumbnail sketch may be more appropriate.
Step 2	Explore further to determine which options should be pursued, from 2D photomontages to 3D animation or fully interactive virtual reality. This may reflect time constraints, resource issues and the needs of the different audiences involved.
Step 3	Consider the level of costs and benefits associated with each approach to enable the client to make an informed choice, bearing in mind the requirements of the Regulations and the requirements of the competent authority.
Step 4	Identify delivery dates for the presentation material and relate this to critical project milestones, such as submission of the planning application, to ensure appropriate time is allowed for key steps, such as delivery of Ordnance Survey data or preparation of a site survey, as well as for work with the project design team.
Step 5	Agree with the client the technique to be used, the projected costs and a programme, and inform the competent authority of the approach to be used.
Step 6	Allow time for consultation with the client and the competent authority at an intermediate stage to allow for any changes in the proposed development.

to be taken into account in deciding what form of illustrative techniques to use in a particular project, especially when choosing between 2D and 3D techniques. They need to be appropriate to the type and scale of project envisaged and also to take account of a wide range of practical considerations. Table 8.1 summarises some of the key steps to take in reaching decisions on which approach to use, assuming flexibility in the resources and time available.

Photomontage

8.18 Photomontage is the most widespread and popular visualisation technique for illustrating changes in views and visual amenity. A photomontage is the superimposition of an image onto a photograph for the purpose of creating a representation of potential changes to any view. Its main advantage is that it can illustrate the development within the 'real' landscape and from known viewpoints. The Landscape Institute has provided comprehensive guidance on this subject, noting that:

> The objective of a photomontage is to simulate the likely visual changes that would result from a proposed development, and to produce printed images of a

size and resolution sufficient to match the perspective in the same view in the field.

(Landscape Institute, 2011: 3)

8.19 To meet the rigorous requirements of planning applications and public inquiries photomontages must be technically accurate, to a degree appropriate to the nature of the project. If other images are also prepared simply to show the nature of the proposed development then the same degree of accuracy may not be required, although fair representation remains important. As both products may appear graphically similar it is vital that all parties understand the distinction between them, in terms of the time that they take to prepare, the associated costs and their practical use, remembering their purpose is to illustrate the effects on viewers rather than to illustrate the proposals themselves (as in artists' impressions).

8.20 The photomontages that are included in an Environmental Statement must meet appropriate standards, as described in the Landscape Institute's advice note on requirements for photography and photomontage. There is also specific guidance on preparing and presenting visual representations of wind farms, produced in Scotland but which, as noted previously, is widely used elsewhere. Particular reference should be made to these documents (and any amendments) for detailed technical guidance and for discussion of more theoretical aspects of visual representation. This is an evolving area of practice and landscape professionals should be alert to any new guidance that may emerge.

8.21 Approaches to the preparation of photomontages and the means of making them available to different audiences should be discussed with the competent authority at the scoping stages and as the work on the assessment evolves. The methods used, any difficulties that may arise, decisions taken and final specifications for the visual material included in or with the Environmental Statement should all be set out clearly in a statement of methods.

8.22 In preparing photomontages key requirements are that:

- all viewpoints that are to be used should be photographed at locations that are representative of the view in question and of the character of the location;
- sufficiently high-quality photographs should be used as the starting point for the production of the images;
- weather conditions shown in the photographs should (with justification provided for the choice) be either:
  - representative of those generally prevailing in the area; or
  - taken in good visibility, seeking to represent a maximum visibility scenario when the development may be highly visible;
- the photomontages should show relevant components of the development that are predicted to be visible from each viewpoint, including any associated land use change and, where appropriate and feasible, access arrangements;
- rendering of the photomontages should in general be as photorealistic as possible, but:

Figure 8.3 Cumulative photomontage of redevelopment at Twickenham Railway Station with other permitted development, a neighbouring hotel extension. Note the aspect ratio of the image to encompass the vertical field of view of the urban context; camera used in portrait orientation

  - where the scheme is not fully developed visualisations must be based on clearly stated assumptions about how the development may appear;
  - for large-scale urban developments block models are often used, illustrating scale, massing and arrangement, but without architectural detailing – although not photorealistic these can still be useful in representing the change in the view;

- the field of view and image sizes of the completed photomontages should be selected to give a reasonably realistic view of how the landscape will appear when the image

is held at the correct specified viewing distance from the eye (usually between 300 millimetres and 500 millimetres).

8.23 Visual representations can never be the same as the real experience of the change that is to take place. They are tools designed to assist all interested parties to understand how the change proposed will affect views at particular viewpoints. It is sometimes argued that the most suitable way to view photomontages is in the field where they can be compared with the real view. There is no doubt that this is desirable, but it is not always possible, especially for the general public, and one of the purposes of photomontages is to make up for the fact that not all interested parties can visit the site and the viewpoints. It is therefore essential that not only should the development itself be represented fairly and accurately but that it should be capable of being understood within its landscape context (see Landscape Institute, 2011). Careful thought must also be given to how images are made available to different audiences, including sizes and types of image and printing quality. Photomontages should be printed at an appropriate scale for comfortable viewing at the correct distance.

8.24 Photomontages are preceded by creation of wirelines or wireframes, which in themselves can be a valuable aid to understanding the effects of a proposed development. These are computer-generated line drawings, based on a digital terrain model combined with information about the location and scale of components of the development, to give a relatively simple indication of how the proposal will appear from different viewpoints. They are relatively quick to produce and so can be developed for a larger number of viewpoints, only some of which may then need to be used for preparation of full photomontages and for reporting purposes.

8.25 It has been common practice in the past, especially for wind farms, to present photomontages in what has been called the 'triple arrangement', in which, for a particular view, a panoramic baseline photograph, a matching wireframe image of the proposal and a fully rendered photomontage are combined on one landscape-format A3 sheet. It is now generally accepted that this arrangement may compromise other important standards such as image size and ideal viewing distance. This form of presentation may still be useful for discussion between landscape professionals involved in technical work on assessing visual effects, but in general is not considered to be the best way to communicate with non-landscape experts, for example in the competent authority or stakeholder organisations, or with the general public. For non-expert audiences the emphasis should be on images that are more straightforward to read and that do not require a high degree of technical interpretation.

8.26 Photomontages should be reproduced at an agreed image size and should show an appropriate level of detail. Together with associated baseline photographs and wireframes for key viewpoints, these will generally be incorporated into a separate volume of the Environmental Statement, although this can sometimes make cross-referencing to the text more difficult.

8.27 The Non-Technical Summary of the Environmental Statement, which is required to communicate the content to a wider non-specialist audience (IEMA, 2012b), may also include some photomontages of key views in an appropriate format but in this case it should be emphasised that they are only selected images and that full understanding

requires examination of the full set of images. For all audiences guidance should be provided on how to view the image in order to best represent how the proposal would appear if constructed. The different views to be included in the Non-Technical Summary should be agreed with the EIA co-ordinator and the competent authority in advance and the location of the viewpoints should be clearly shown in each case.

3D models

8.28 More advanced approaches to visualisation are based on 3D computer simulations, such as virtual reality models built up from map data, digital terrain models and aerial photographic data. They can range from simple massing studies to inclusion of significant levels of detail. Such models are not required for most projects and are demanding of resources and computer power. They can, however, where appropriate, cover a sufficiently large area to demonstrate the wider context and setting of a proposed development. Once a 3D model has been created, it becomes possible to view any aspect of the development from any viewpoint contained within the boundary of the model as well as to create and view fly-through imaging. Once baseline conditions are modelled, variations to a scheme can be relatively easily produced and compared.

8.29 Such approaches are most useful where there is a need to portray complex developments in more detail than can easily be achieved using a single or even several photomontages – for example where there is a requirement to select a large number of viewpoints, moving perhaps from an aerial to a ground perspective and on into the interior of a building. An animated sequence may also be helpful in explaining the orientation of a site more dynamically than a series of single photographs can achieve. Equally they do not necessarily represent the way that people would actually experience the change and so can be misleading in an assessment context.

8.30 Achieving a high level of detail in such models takes considerable time and can incur considerably higher costs. The purpose of and audience for the model must be carefully considered before deciding what is required, in discussion with the client and the competent authority. The precise choice of techniques for illustration of a particular scheme will depend on the data available, and especially on the timing of the work and the budget available. Several economies may also be possible – for example using the same model to generate an accurate 2D perspective, which may then form the basis of a 3D animated virtual reality sequence.

8.31 Careful thought must be given to how the competent authority, stakeholders and the public will view graphic and especially 3D material and animations. Ideally all parties should have access to the same type of information and illustrative material. Digital images cannot always be incorporated into hard copy reports like the Environmental Statement itself or its technical appendices. But they can be supplied on a CD or DVD, or incorporated into a presentation using software programmes such as PowerPoint, or made available on websites to allow as many people as possible to have access to them. More complex material, especially 3D and animated graphics, must be used with caution as people may not have access to the necessary technology to view it. Public meetings or exhibitions are likely to be the main way of showing such information but these may only reach a limited number of stakeholders.

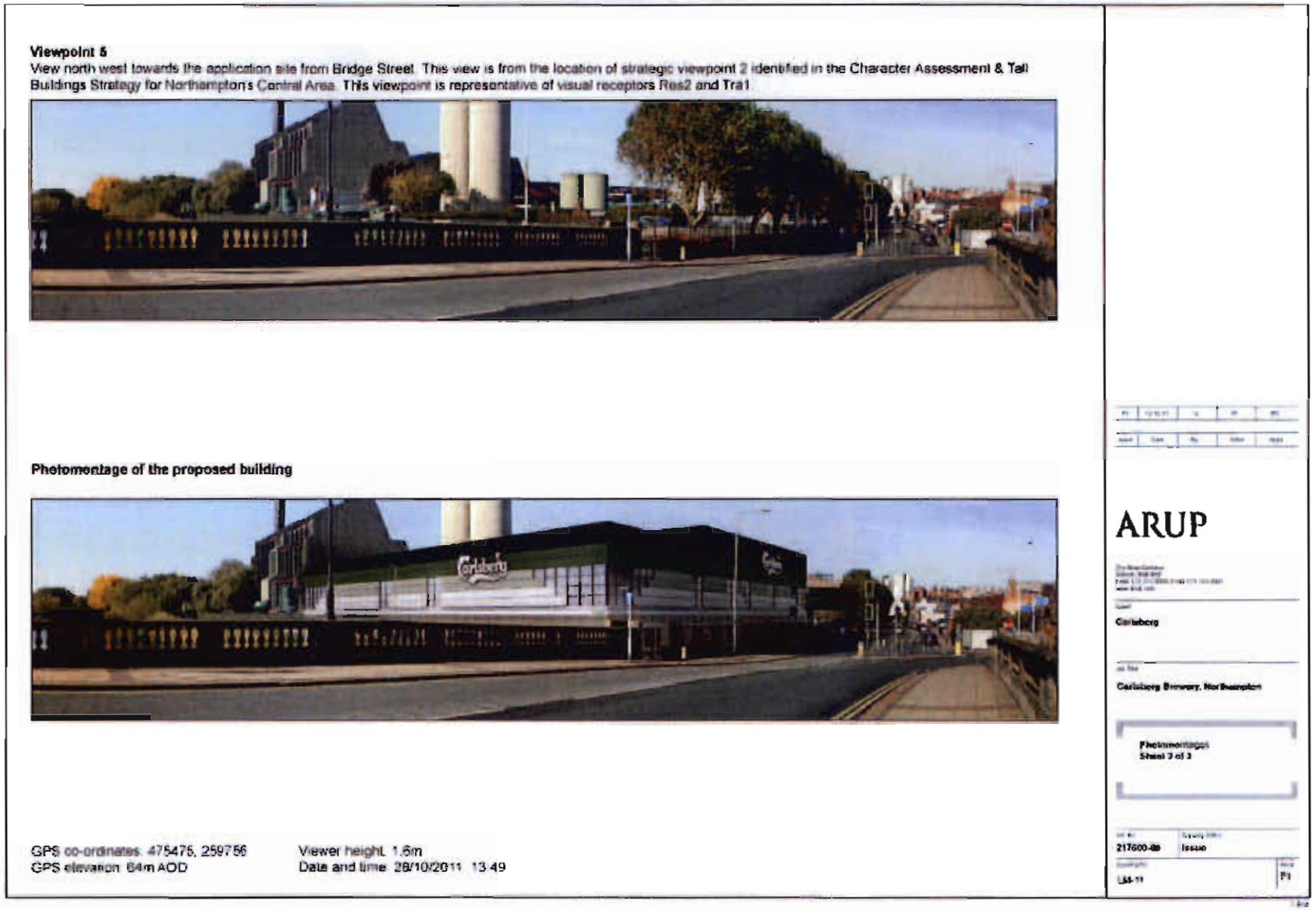

Figure 8.4 A 3D model was produced for this proposed bottling hall to enable the proposed development to be accurately depicted in a photomontage

Non-digital forms of visual representation

8.32 Other non-digital visualisation techniques may also be appropriate, for example when speed of production and available budget are limiting factors, or simply when they are preferred. The main alternatives are overlays and perspective sketches – either hand drawn or constructed over computer-generated wire lines. Hand-drawn work can be more time consuming than the digital equivalent and is more difficult to amend but can still be useful if well executed. Artists' impressions should only be used if they are sufficiently accurate to be meaningful and their limitations are made clear.

8.33 Physical (as opposed to digital) models tend to be expensive to produce, but can be particularly useful in public consultation, especially in urban settings. As 3D printers become more affordable, they may in future offer an option for generating physical models more rapidly.

8.34 Finally, using photographs of similar developments to illustrate what a proposal may be like can be very helpful, provided it is made absolutely clear that they are of another development and are indicative and for illustrative purposes only.

Review of the landscape and visual effects content of an Environmental Statement

8.35 Competent authorities receiving Environmental Statements will often subject the documents to formal review of both the adequacy of the content and of their quality. The review process will usually check that the assessment:

- meets the requirements of the relevant Regulations;
- is in accordance with relevant guidance;
- is appropriate and in proportion to the scale and nature of the proposed development;
- meets the requirements agreed in discussions with the competent authority and consultation bodies during scoping and subsequent consultations.

8.36 The summary good practice points in this guidance should assist in review of the landscape and visual effects content of an Environmental Statement. In addition, several existing sources may also help anyone involved in reviewing this topic to decide what to look for:

- IEMA has developed a set of general criteria for reviewing Environmental Statements and registrants for the EIA Quality Mark must meet the criteria (IEMA, 2011a).
- The former Countryside Commission published criteria for reviewing the landscape and countryside recreation content of Environmental Statements (Countryside Commission, 1994).
- Appendix 1 of Scottish Natural Heritage's handbook on Environmental Impact Assessment contains useful tests to help judge the landscape and visual effects content of Environmental Statements (David Tyldesley and Associates, 2009).

8.37 The competent authority may need to consider whether it would be advisable to seek specialist advice or expertise, or indeed to appoint an independent third party to carry

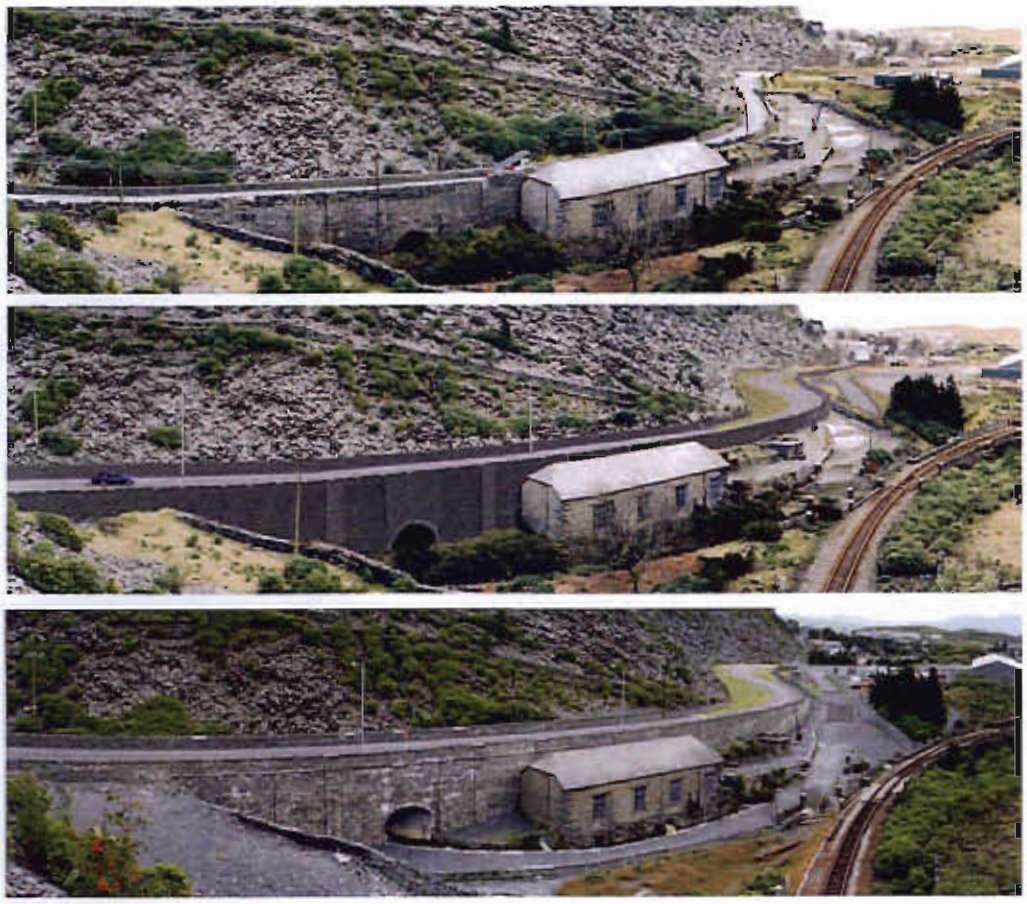

Figure 8.5 Review and monitoring: what actually happened compared with what was predicted in the LVIA

Top: Pre-existing view
Middle: Photomontage of proposed road improvement
Bottom: As-built view

out or advise on the review. Advice on whether landscape and visual effects are adequately and effectively covered should, if required, be sought from suitably qualified landscape professionals. Whoever carries out the review, it should generally consider, among other matters that may be agreed:

- the scope, content and appropriateness of both the landscape and the visual baseline studies;
- the methods used in conducting the assessment of landscape and visual effects;
- the accuracy and completeness of the identification of the landscape and visual effects;
- the appropriateness of proposed mitigation, both in terms of measures incorporated into the scheme design and those identified to mitigate further the effects of the scheme;
- the approach to judging the significance of the effects identified, in terms of transparency and clarity of communication, and accuracy in identifying and describing the significant residual effects;

- the appropriate handling of cumulative landscape and visual effects, given the agreed scope and requirements for this work;
- the appropriate communication of all aspects of the assessment of landscape and visual effects in text, tables and illustrations;
- the effectiveness of visualisations in communicating the visual effects of the proposals at agreed viewpoints.

Summary advice on good practice

- The same broad principles for presenting landscape and visual effects information apply whether LVIA is carried out as part of an EIA or as a standalone 'appraisal'.
- Where LVIA is undertaken as part of an EIA, the approach to presentation should be discussed with the EIA co-ordinator to ensure the content included in the main text of the Environmental Statement is proportionate and appropriate to the significance of the findings of the LVIA.
- Presentation techniques must be carefully chosen and appropriately applied. The approach to presentation and the level of sophistication required in the illustration of change should be discussed and agreed with the competent authority at the outset.
- The effort required to produce appropriate illustrative material, especially visualisations to show the proposed changes, must be kept in proportion to the nature of the proposed development.
- The structure and content of a report on the assessment of landscape and visual effects will follow a broadly similar pattern in each case, but with variations reflecting particular circumstances.
- Agreement will be needed on how cumulative landscape and visual effects are to be covered – either as part of a separate cumulative effects section of the Environmental Statement or as a sub-section of the chapters dealing specifically with landscape and visual effects.
- In view of the clear differences between landscape effects and visual effects and the potential for them to be confused, it is good practice to report on them separately and to clearly distinguish between them.
- Ideally baseline information relevant to landscape and to visual effects should not be separated from the identification and description of effects, but where the EIA co-ordinator wishes to have a separate chapter on baseline findings the main findings should be summarised in the landscape and visual chapters.
- In an Environmental Statement the structure of reporting will need to be consistent across the environmental topics and to reflect relationships between topics, for example placing cultural heritage and ecology/nature conservation topics next to the landscape topic.
- Reporting of both landscape effects and visual effects should include description of the baseline, identification and description of effects, assessment of the significance of the effects, and description of mitigation measures, including how they will be delivered.

The choice of appropriate presentation techniques is crucial to good communication.

Text should be comprehensive but also concise and to the point, and written in plain and easy-to-understand language.

Text should be impartial and dispassionate, presenting information and reasoning accurately and in a balanced way, and making clear where statements are based on the author's judgement.

Clear definitions should be provided for any technical terms that are used, supported by a glossary of terms.

Tables, and any matrices related to judgements of significance, should be used to support and to summarise narrative descriptive text rather than to replace it.

Text and illustrations need to work well together, with each complementing and supporting the other and with illustrations supporting rather than duplicating the content of the text.

The amount and type of illustrative material should be in proportion to the task in hand and should be agreed in consultation with the competent authority.

Maps, at suitable scales and levels of detail, should be prepared using appropriate digital methods and included in the Environmental Statement to illustrate key spatial aspects of the LVIA.

Photographs can have an important role to play in communicating information about the landscape and the visual effects of a proposed development, although they cannot convey exactly the way that the effects would appear on site.

For landscape effects photographs should illustrate the landscape character of the site and its context, from locations carefully chosen in discussion with the competent authority, with prevailing weather and atmospheric conditions described, seasonal effects noted, and technical details of the photography recorded.

In the baseline for visual effects photographs should illustrate existing views and visual amenity at agreed viewpoints. Change is best illustrated by means of visualisations, although these are not a substitute for descriptions in the text and may need to be accompanied by further explanation and description.

Choosing the right approach for visualisations requires careful consideration. They need to be appropriate to the type and scale of project envisaged and also to take account of a wide range of practical considerations.

Photomontage is the most widespread and popular visualisation technique for illustrating changes in views and visual amenity. It must be technically accurate to a degree appropriate to the nature of the project and reflecting discussions with the competent authority.

The photomontages that are included in an Environmental Statement must meet appropriate standards as described in the Landscape Institute's advice note (and any amendments) on requirements for photography and photomontage, and reflect other relevant guidance.

Photomontages should be based on sufficiently high-quality photographs that are representative of the view in question, show appropriate (and justified) levels of

visibility, show relevant components of the development as realistically as possible, and be printed at an appropriate scale for comfortable viewing at the correct distance.

Presenting photomontages in the 'triple arrangement', in which a panoramic baseline photograph, a matching wireframe image of the proposal and a fully rendered photomontage are combined, may compromise other important standards such as image size and ideal viewing distance.

Photomontages should be reproduced at an agreed image size and should show an appropriate level of detail. They may be incorporated into a separate volume of the Environmental Statement if necessary.

The Non-Technical Summary of the Environmental Statement may also include some photomontages of key views but it should be emphasised that they are only selected images and that full understanding requires examination of the full set of images.

3D models are most useful where there is a need to portray complex developments in more detail than can easily be achieved using a single or even several photomontages. They are not required for most projects and are demanding of resources and computer power.

Careful thought must be given to how the competent authority, stakeholders and the public will view graphics, and especially 3D material and animations. Ideally all parties should have access to the same type of information and illustrative material.

Non-digital visualisation techniques, such as overlays and perspective sketches (either hand drawn or constructed over computer-generated wire lines), may also be appropriate, for example when speed of production and available budget are limiting factors, or simply when they are preferred and illustrate the proposals adequately.

The competent authority will review the adequacy of the landscape and visual effects material included in the Environmental Statement, and the summary good practice points in this guidance and several other existing sources may help in this. If specialist advice or expertise is required to assist with the review it should be sought from suitably qualified landscape professionals.

Glossary

This glossary has been prepared specifically for this edition of the GLVIA and defines the meanings given to these terms as used in the context of this guidance.

Access land Land where the public have access either by legal right or by informal agreement.

Baseline studies Work done to determine and describe the environmental conditions against which any future changes can be measured or predicted and assessed.

Characterisation The process of identifying areas of similar landscape character, classifying and mapping them and describing their character.

Characteristics Elements, or combinations of elements, which make a contribution to distinctive landscape character.

Compensation Measures devised to offset or compensate for residual adverse effects which cannot be prevented/avoided or further reduced.

Competent authority The authority which determines the application for consent, permission, licence or other authorisation to proceed with a proposal. It is the authority that must consider the environmental information before granting any kind of authorisation.

Consultation bodies Any body specified in the relevant EIA Regulations which the competent authority must consult in respect of an EIA, and which also has a duty to provide a scoping opinion and information.

Designated landscape Areas of landscape identified as being of importance at international, national or local levels, either defined by statute or identified in development plans or other documents.

Development Any proposal that results in a change to the landscape and/or visual environment.

Direct effect An effect that is directly attributable to the proposed development.

'Do nothing' situation Continued change or evolution in the landscape in the absence of the proposed development.

Ecosystem services The benefits provided by ecosystems that contribute to making human life both possible and worth living. The Millennium Ecosystem Assessment (www.unep.org/maweb/en/index.aspx) grouped ecosystem services into four broad categories:

1. supporting services, such as nutrient cycling, oxygen production and soil formation – these underpin the provision of the other 'service' categories;
2. provisioning services, such as food, fibre, fuel and water;
3. regulating services, such as climate regulation, water purification and flood protection;
4. cultural services, such as education, recreation, and aesthetic value.

Elements Individual parts which make up the landscape, such as, for example, trees, hedges and buildings.

Enhancement Proposals that seek to improve the landscape resource and the visual amenity of the proposed development site and its wider setting, over and above its baseline condition.

Environmental Impact Assessment (EIA) The process of gathering environmental information; describing a development; identifying and describing the likely significant environmental effects of the project; defining ways of preventing/avoiding, reducing, or offsetting or compensating for any adverse effects; consulting the general public and specific bodies with responsibilities for the environment; and presenting the results to the competent authority to inform the decision on whether the project should proceed.

Environmental Statement A statement that includes the information that is reasonably required to assess the environmental effects of the development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile, but that includes at least the information referred to in the EIA Regulations.

Feature Particularly prominent or eye-catching elements in the landscape, such as tree clumps, church towers or wooded skylines OR a particular aspect of the project proposal.

Geographical Information System (GIS) A system that captures, stores, analyses, manages and presents data linked to location. It links spatial information to a digital database.

Green Infrastructure (GI) Networks of green spaces and watercourses and water bodies that connect rural areas, villages, towns and cities.

Heritage The historic environment and especially valued assets and qualities such as historic buildings and cultural traditions.

Historic Landscape Characterisation (HLC) and Historic Land-use Assessment (HLA) Historic characterisation is the identification and interpretation of the historic dimension of the present-day landscape or townscape within a given area. HLC is the term used in England and Wales, HLA is the term used in Scotland.

Indirect effects Effects that result indirectly from the proposed project as a consequence of the direct effects, often occurring away from the site, or as a result of a sequence of interrelationships or a complex pathway. They may be separated by distance or in time from the source of the effects.

Iterative design process The process by which project design is amended and improved by successive stages of refinement which respond to growing understanding of environmental issues.

Key characteristics Those combinations of elements which are particularly important

to the current character of the landscape and help to give an area its particularly distinctive sense of place.

Land cover The surface cover of the land, usually expressed in terms of vegetation cover or lack of it. Related to but not the same as land use.

Land use What land is used for, based on broad categories of functional land cover, such as urban and industrial use and the different types of agriculture and forestry.

Landform The shape and form of the land surface which has resulted from combinations of geology, geomorphology, slope, elevation and physical processes.

Landscape An area, as perceived by people, the character of which is the result of the action and interaction of natural and/or human factors.

Landscape and Visual Impact Assessment (LVIA) A tool used to identify and assess the likely significance of the effects of change resulting from development both on the landscape as an environmental resource in its own right and on people's views and visual amenity.

Landscape character A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.

Landscape Character Areas (LCAs) These are single unique areas which are the discrete geographical areas of a particular landscape type.

Landscape Character Assessment (LCA) The process of identifying and describing variation in the character of the landscape, and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features thar make landscapes distinctive. The process results in the production of a Landscape Character Assessment.

Landscape Character Types (LCTs) These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage parterns, vegetation and historical land use and settlement pattern, and perceptual and aesthetic attributes.

Landscape classification A process of sorting the landscape into different types using selected criteria but without attaching relative values to different sorts of landscape.

Landscape effects Effects on the landscape as a resource in its own right.

Landscape quality (condition) A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.

Landscape receptors Defined aspects of the landscape resource that have the potential to be affected by a proposal.

Landscape strategy The overall vision and objectives for what the landscape should be like in the future, and what is thought to be desirable for a particular landscape type or area as a whole, usually expressed in formally adopted plans and programmes or related documents.

Landscape value The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons.

Magnitude (of effect) A term that combines judgements about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration.

Parameters A limit or boundary which defines the scope of a particular process or activity.

Perception Combines the sensory (that we receive through our senses) with the cognitive (our knowledge and understanding gained from many sources and experiences).

Photomontage A visualisation which superimposes an image of a proposed development upon a photograph or series of photographs.

Receptors See Landscape receptors and Visual receptors.

Scoping The process of identifying the issues to be addressed by an EIA. It is a method of ensuring that an EIA focuses on the important issues and avoids those that are considered to be less significant.

Seascape Landscapes with views of the coast or seas, and coasts and adjacent marine environments with cultural, historical and archaeological links with each other.

Sensitivity A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor.

Significance A measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic.

Stakeholders The whole constituency of individuals and groups who have an interest in a subject or place.

Strategic Environmental Assessment (SEA) The process of considering the environmental effects of certain public plans, programmes or strategies at a strategic level.

Susceptibility The ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences.

Time depth Historical layering – the idea of landscape as a 'palimpsest', a much written-over manuscript.

Townscape The character and composition of the built environment including the buildings and the relationships between them, the different types of urban open space, including green spaces, and the relationship between buildings and open spaces.

Tranquillity A state of calm and quietude associated with peace, considered to be a significant asset of landscape.

Visual amenity The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through an area.

Visual effects Effects on specific views and on the general visual amenity experienced by people.

Visual receptors Individuals and/or defined groups of people who have the potential to be affected by a proposal.

Visualisation A computer simulation, photomontage or other technique illustrating the predicted appearance of a development.

Zone of Theoretical Visibility (ZTV; sometimes Zone of Visual Influence) A map, usually digitally produced, showing areas of land within which a development is theoretically visible.

Notes

Chapter 1

1. (Paragraph 1.16) Scottish Executive Development Department (1999), for example, notes in the glossary definitions of 'impacts' and 'effects' that 'In this PAN, except where the context indicates otherwise, the words impact and effect have been used interchangeably.'

Chapter 3

1. (Paragraph 3.45) See for example Swanwick, Bingham and Parfitt (2003) and references therein; also Planning Aid (2010).

Chapter 4

1. (Paragraph 4.2) In England this is summarised in an approach that has become known as the 'Rochdale Envelope'. See Planning Inspectorate (2012).
2. (Paragraph 4.41) For further detail see IEMA (2011b), Box 6.5B.

Chapter 5

1. (Paragraph 5.4) See Swanwick and Land Use Consultants (2002). In Wales, landscape information is available in the LANDMAP system, developed by the Countryside Council for Wales, which systematically records and evaluates the landscape in five layers or aspects in a GIS, which in turn can be combined to produce Landscape Character Assessments. This can be found online at http://www.ccw.gov.uk/landmap. Natural England have published *An Approach to Seascape Character Assessment (NECR105)* which is available online at http://publications.naturalengland.org.uk/publications/2729852
2. (Paragraph 5.21) At the time of writing, no National Parks have been designated in Northern Ireland, although legislation has been introduced enabling their establishment in the future.

Chapter 6

1. (Paragraph 6.5) See for example GLA (2010).
2. (Paragraph 6.23) See for example the technical appendices in horner + maclennan and Envision (2006).

Chapter 7

1. (Paragraph 7.6) See for example the discussion on cumulative effects assessment in IEMA (2011b), Section 6.
2. (Paragraph 7.11) See European Commission (2012).
3. (Paragraph 7.12) Further guidance on defining rhe geographic and temporal scope of cumulative impact assessments can be found in Hyder (1999).

Chapter 8

1. (Paragraph 8.15) Refer to the Met Office website for visibility definitions: http://www. metoffice.gov.uk/weather/uk/guide/key.html

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